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The Journal of the Fire Protection Profession

NOVEMBER 27, 1929

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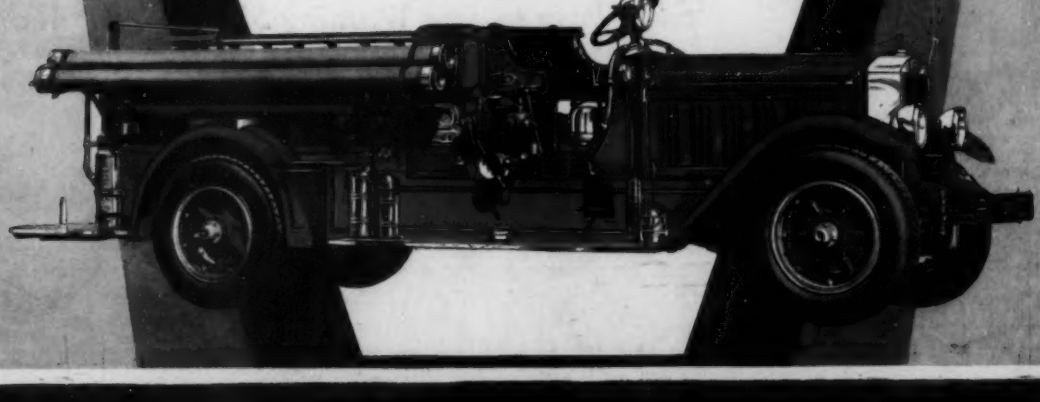

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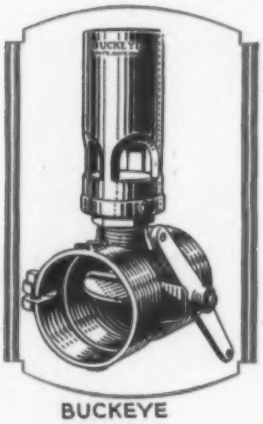

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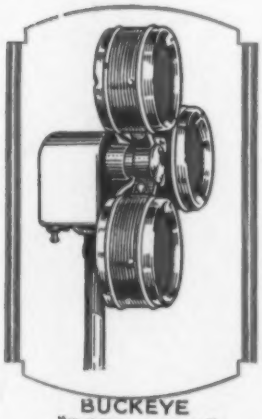

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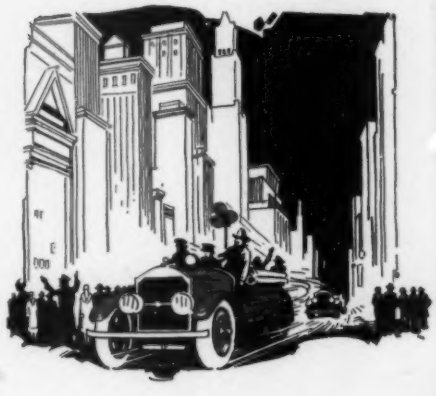

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The Publishers

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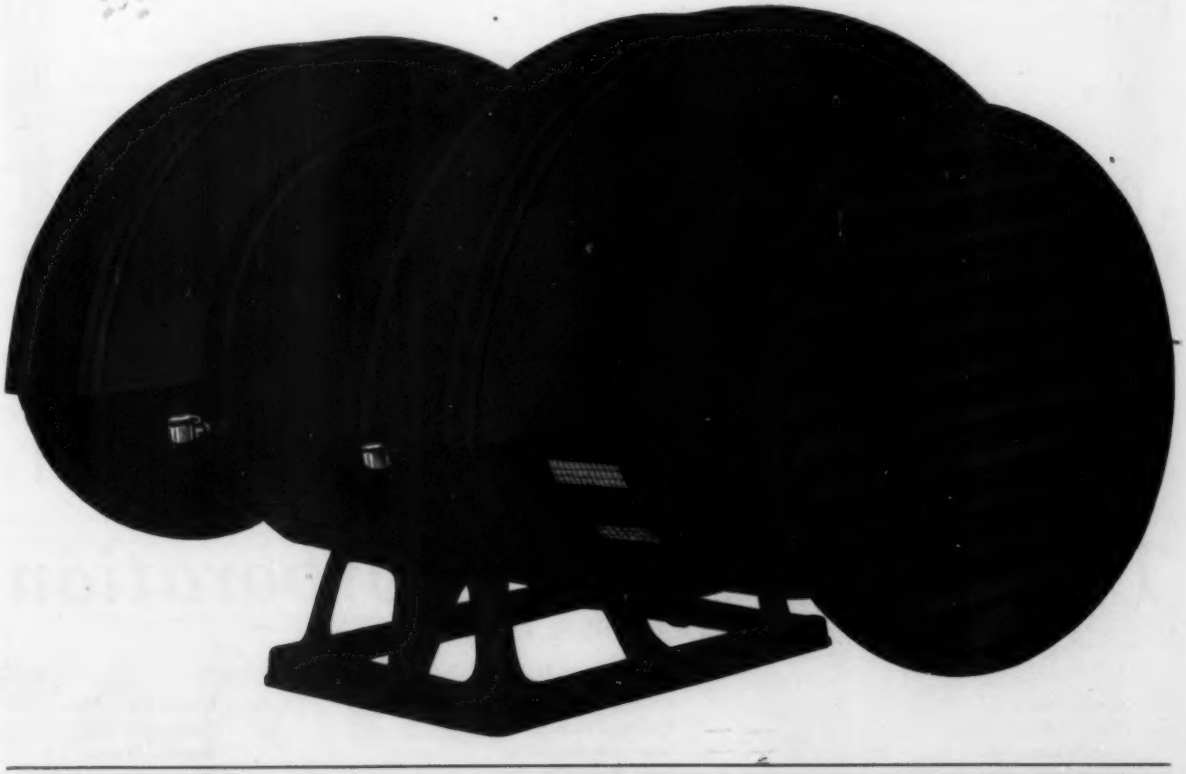

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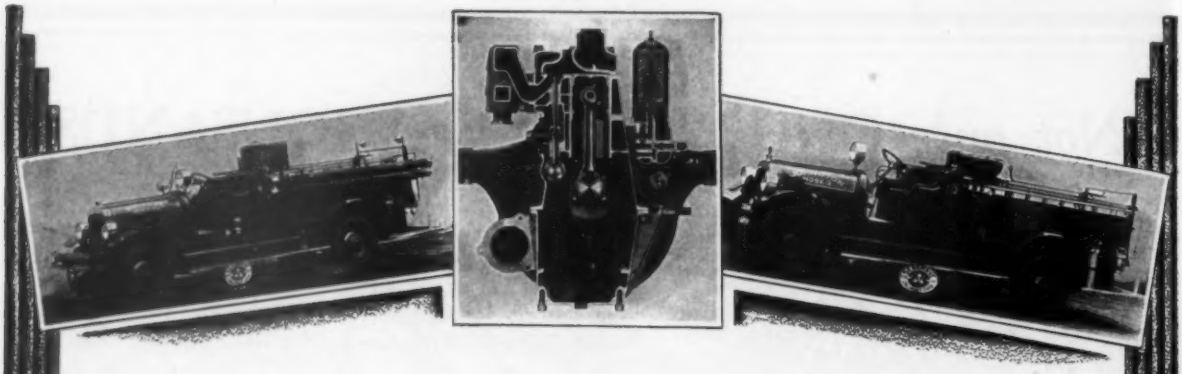

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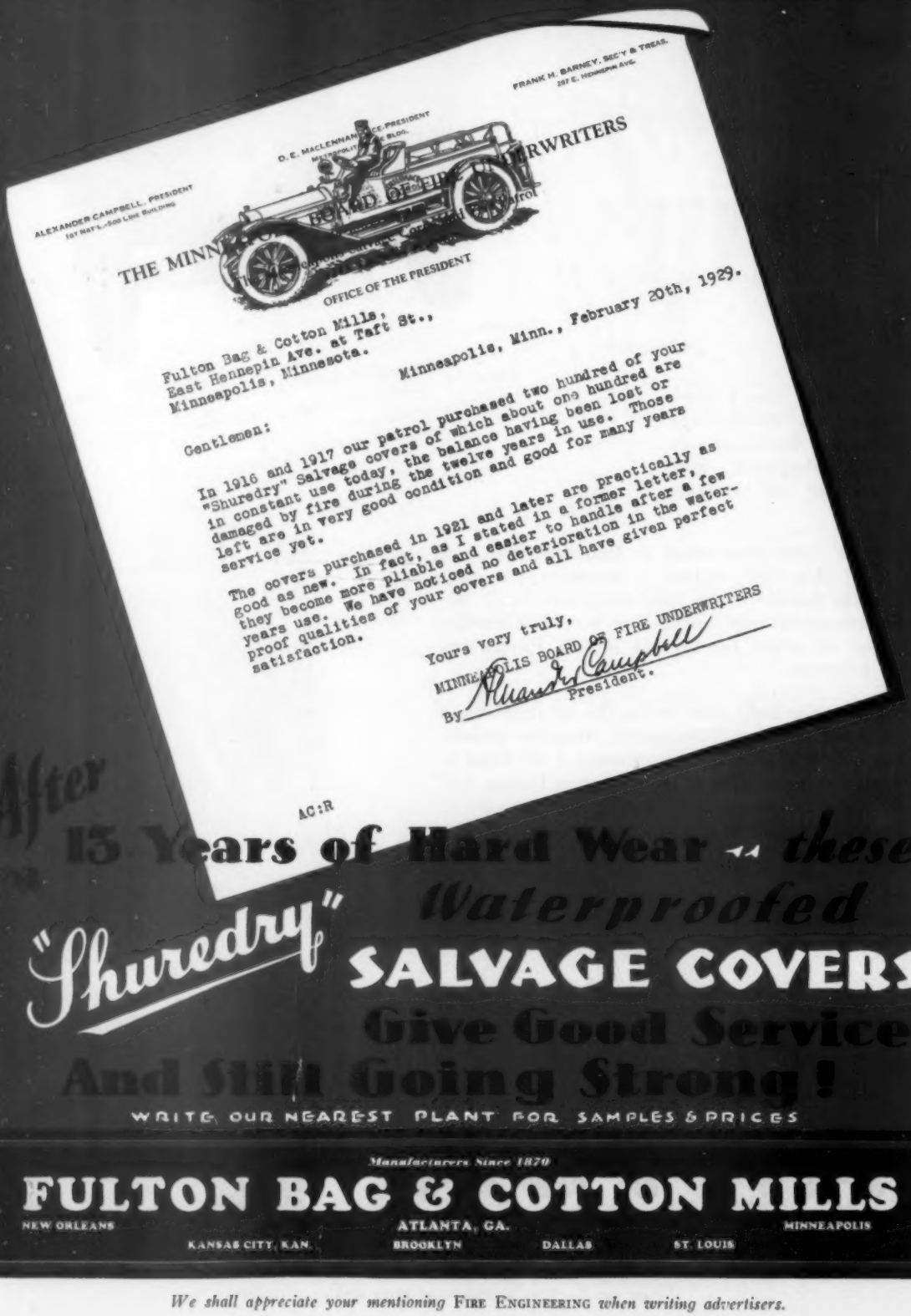
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(A Consolidation of Fire and Water Engineering and The Fire Engineer)

The Journal of the Fire Protection Profession

VOLUME LXXXII NOVEMBER 27, 1929 NUMBER 24

How Best to Train the New Fireman

Modern Fireman Must Have a Wide and Varied Knowledge—Careful Training Should Be Given the New Member

By DISTRICT CHIEF GEORGE WARD, Fire Department, St. Louis, Mo.

IT has become generally recognized among volunteer as well as paid Fire Departments that there is a necessity for the careful training of the fireman in order to attain the most efficient results. The following paper contains some excellent suggestions along this line:

This is the specialist age in every profession, trade and business. The "Jack of All Trades" is extinct.

This specializing has extended to fire fighting. The old type fireman was content to stay in the street and wash the building off the foundations. Present day firemen recognize that a dollar loss by water is as much a loss as a dollar loss by fire, and all departments now issue strict orders to spare water until fire is seen.

A strong back and a weak mind were the sole requirements for the old-type fireman, and while the strong back is still necessary, the weak-minded fireman is soon on the outside looking for another job.

The public now generally recognizes the fact that losses of lives and property by fire are largely preventable, and that special skill and training are necessary for the firemen to extinguish fires expeditiously. For this reason more intelligence is needed for the use and application of the various chemicals, engines and appliances that science has placed at the fireman's disposal. Thus a demand for firemen of high mentality has arisen, and written as well as physical examination have largely weeded out incompetents.

Modern Fireman Has New Outlook

Some one has said that the proper time to put out fires is before they start. That is by the use of fire prevention and inspection methods. The old type fireman knew enough to curry a horse and hold a nozzle in the general direction of the fire. The advent of motor apparatus, the greater use of chemicals and small stream appliances, as well as special methods of salvaging have given the men a new outlook on the business, and the modern up-to-date fireman, to be in the swim at all, must have a fair education, and an exact knowledge of considerable of what were formerly known as "the learned arts."

He Must Have a Wide Knowledge

He must know how to operate an automobile and take care of minor repairs to it, and to operate an automobile pumper in case of need. He must know something of hydraulics and the friction loss of water flowing through hose and stand pipes. He should also know the pressure required at the nozzle for inside fire fighting, and the proper extra pressure needed to overcome winds in outside fire streams. Pressures needed at pump or hydrant for different lengths of hose lay-outs, and extra pressures to reach the various floors of high buildings must as well be known.

To be able to raise ladders and climb them and, often when blinded by smoke, to bring hysterical or unconscious people down them on his back is a part of his job. He should know how to use the life gun, as occasionally someone, frequently a fireman, will be caught on the roof of a building with all means of escape cut off, and the life gun shoots a heavy cord over the building by means of which a rope can be drawn up and escape made by sliding. He may need to use an acetylene cutting torch to cut heavy beams in buildings to facilitate rescue work or fire extinguishment. He should be familiar with first aid methods and the use of the inhalator for giving aid to persons overcome by smoke, and also know something about pneumatics and the use of fire pumps for pumping air into gas filled caissons.

Must be Familiar with Chemicals and Fire Extinguishers

He must be familiar with the chemicals used for fire extinguishment, so as to charge the chemical tanks on the fire apparatus and the portable extinguishers used

"THE new fireman is taken through a course of training designed to give him in a few months the needed qualifications. Assuming that his physical and mental qualities are up to standard, his education in a modern fire department training school is thorough and his development is rapid. The finished product is what we are proud to call 'a modern fireman'—a skilled workman at his chosen calling."

in buildings. He must make quick decisions as to whether foam type, dry powder, gas, soda and acid extinguishers, or small water streams from hand pumps, will extinguish incipient fires with the least damage to building and contents. He must be familiar with modern sprinkler systems, know the valves and when to open or shut them, and be able to operate or stop the plant fire pump. He must know enough about refrigeration, especially the chemicals used in multiple types, to be able to use the right gas mask when closing off leaky systems.

Must Understand Building Construction

He must have sufficient knowledge of building construction to be able to judge, in case of an extensive fire, whether the floors or walls are in danger of collapse. He must know sufficient about electricity to pull fuses, throw switches, cut high tension wires and restore circuits for lighting. He must know salvage work for the protection of property. He must have a working knowledge of the fire hazards of nearly all classes of storage and manufacture, and know the state and city laws relating to fire prevention and fire protection. He must be a walking city directory of streets and important buildings and know how to get into, and especially get out of, all buildings in his district. He must know the size and carrying capacity of water mains in his district and the location of hydrants. He must be of good appearance and address, and be able to approach the president of the factory as well as the owner of the corner delicatessen.

That is a fairly accurate, and fairly complete, picture of a modern up-to-date, well-trained fireman, the result of either of years of experience, or of months of careful training and education. And, may I add, it is only the exceptional man who acquires and possesses all or most of those qualifications merely by the years of experience. The modern ideas of fire fighting, fire extinguishment and loss reduction require more efficient means and methods, and after all, it is the man power that counts for success or failure.

Training the New Fireman

The new fireman of today is taken through a course of training designed to give him, in a few months, the qualifications that I have described. Assuming that his physical and mental qualities are up to standard, his education in a modern fire department training school is thorough and his development is rapid. The finished product is what we are proud to call "a modern fireman"—a skilled worker at his chosen calling.

Most cities of any size now provide a drill school and trained instructors, with a drill tower where individuals as well as companies are required to attend for training.

The St. Louis Drill School

Permit me to describe the Drill School with which I am most familiar and in which I am most interested. In St. Louis all new members of the department are assigned to the Drill School for a period of intensive drilling and training, where they learn the best practices in hose handling, ladder placing and raising; the purpose and use of the many fire fighting appliances and devices; the standardized methods of the department in the use of apparatus; life saving, first aid and resuscitation, and the elements of modern fire fighting. All of this they pass through before they are assigned to active service with a company. By going through the school, before they go into active service, it will be perceived that these men learn the right methods and do not have to unlearn the wrong methods which many of their older friends in the department have acquired in the school of hard knocks. With all credit and respect to the veteran fireman and his methods, the modern Drill School and modern methods are developing a better fire fighter.

What is Taught at the School

The new fireman at the Drill School, as well as the other members of the department on their periodic visits, are taught ladder raising and scaling; proper methods of carrying hose over ladders into building for fire service; uniform ways of carrying hose up fire escapes and connecting to standpipes and sprinkler systems and to deluge sets, water towers, cellar pipes, distributors and turret nozzles. He is taught how to utilize his tools to best advantage in emergencies—for instance, how to make a cellar pipe with a ladder, nozzle and section of hose. He is taught life saving; how to hold a life net; how to take people from several floors at the same time in great emergencies by the use of extension ladders, with what is known as "the hotel raise."

Instruction for All Members of Department

All members of the department receive instructions on gas hazards encountered in fire fighting, so that they have a thorough knowledge of industrial, poisonous and asphyxiating fumes and vapors. The methods of ventilating buildings to remove smoke are taught and as it frequently happens that a fireman must enter smoke filled premises and frequently buildings filled with gases or fumes, the use of smoke masks and gas masks is demonstrated. Members are taught the use of inhalators and the different methods of resuscitating victims of smoke and fumes, and how to pump air into gas filled caissons, excavations and tanks where human life is at stake.

Chauffeurs and engineers are given training in operation and minor repairs of apparatus at the department repair shop.

Officers and Company Schools

Company schools cover the subject of street locations, water mains, hydrants and fire alarm boxes. Officers' schools cover instruction in State and City laws and ordinances, traffic and building laws, building inspection and the unusual hazards of local manufacturing operations.

Again you will perceive the finished product of this modern training, "the modern fireman," developed mentally and physically and trained to meet, not only the routine requirements, but also the emergency demands upon his job. His philosophy is developed but his psychology he must inherit, for no one can teach him that. He must be gracious at all times for the demands upon a fireman are many and varied. He may be called upon to hold his thumb upon a hole in a burst water pipe under the kitchen sink, or to go into a burning building to get Aunt Mary's picture on the dresser, or to bring baby's kitten from the top of a telephone pole.

(From a paper read before the annual convention of the Illinois Firemen's Association at Joliet.)

New Fire House Opened in Livingston, N. J.—A new fire station has been opened in Livingston, N. J.

Inhalator Squad Saves Man in Elmira, N. Y.—The inhalator squad of the Elmira, N. Y., fire department worked for five hours in the local hospital to revive a coal gas victim. When the supply of carbogen gas was used up, an additional supply was rushed from the Binghamton Fire Department. Chief Brown drove halfway to Elmira where he was met by an Elmira detail and the supply rushed to the hospital. The victim recovered, but he died the following day.

Baled Waste Paper Makes a Smoky and Persistent Fire

At this particular blaze which occurred at Bogota, N. J., the fire department operated for three days before the fire was finally out. The high piles of stock made it extremely difficult for the department to do effective work, and it was necessary for the men to take a great deal of punishment in order to check the progress of the blaze.

Forgetting Water Damage

At the Junk Shop Fire Little Care Exercised to Minimize Damage from Water

FIGHTING the junk shop fire is a thankless job. More punishment is taken per dollar of value at this type of fire than at any other commonly encountered by fire departments. Dense smoke, pungent fumes, and little room to work characterize this type of blaze.

Dilapidated buildings probably represent the commonest type of structure in which waste paper, old rags, and other forms of junk are stored. When a building has served its useful life for other purposes, it winds up its career as a junk shop. Hence the structural conditions at this type of fire creates a serious life hazard, as well as fire hazard, for the fire department.

Frame buildings predominate; the largest establishments usually occupy two or more floors, while the smaller shops are confined to a single floor.

In any case, the building is usually well packed with baled paper and rags, old furniture, and miscellaneous materials which still have a little value left in them.

Where more than one floor is employed, there is serious danger of overloading the upper floor, with the result that early collapse of floors may be expected if fire involves the building. In addition, the great quantities of water required to extinguish such a fire, and the absorptive nature of the contents result in a tremendous increase in load on the floor so that in the event that the fire does not weaken the floor supports, the additional load will probably accomplish the same result in bringing the floors to the ground.

Because the materials stored in such structures are bulky, they are usually piled up to the ceiling on each of the floors. This limits the space in which the department may operate, and increase the difficulty in getting streams to the seat of the fire. In order to reach the blaze, it is frequently necessary for the members of the department to take a lot of punishment.

Origin of Fire

The predominant cause of fires in junk shops is defective heating equipment, coupled with poor housekeeping. Combustible materials are stored against or close to stove pipes, stoves or other heating apparatus and a little over-heating on the part of the equipment will result in ignition of the junk.

Some fires in such establishments have also been attributed to spontaneous heating of oily wastes within bales of rags, while others have been charged to smoking and the use of matches.

Handling the Fire

Frequently when the fire department is called it arrives to find the building fully involved by fire. Before

the department enters the building thorough ventilation must be provided. This is accomplished in the usual manner, by opening up over roof, opening windows front and rear, and doors, where provided. Just as soon as ventilation has been accomplished, lines can be brought in to a point where they will perform their best work. A word of caution is necessary, however. If the fire has been burning for some time on the ground floor when the department arrives and if the floors above are also used for storage of junk, and are well stocked, men should not be ordered in on ground floor unless it is certain that the floor beams of the upper floors have not been weakened to a point where the upper floors may give way. In other words, at fires in most junk shops occupying two or more stories, where fire has been burning for some time, it is safer to operate from the outside and such should be done unless the security of the floors is beyond question.

Nozzles of 1¼-inch diameter are usually employed for operating on such fires, unless they involve a large area, in which case larger tips may be put into service.

Where the stock is piled near the ceiling, it will be necessary to operate lines from an elevation well up toward the ceiling, so that maximum penetration can be secured. It is very effective in killing the body of the fire to direct streams to the ceiling so that they will spray down over the burning materials. This is particularly so where the fire has not been burning for some time and where it has not penetrated to the center of the piles of materials on the various floors.

The nature of the contents will create a fast spreading fire, so that it will be necessary to bring lines into play at front and rear of the building. In such an operation, particularly in buildings of large area, care must be taken not to permit the men at either end of the building to drive the fire and smoke toward the other. Such a procedure would seriously interfere with efficiency in handling the fire, and might result in injury to some of the men.

Where the fire is burning on the second floor or floors above, and where great quantities of water will have to be used, precaution will also have to be employed to protect the men working below. As tremendous quantities of water may be required to bring the fire under control, and as a large percentage of this water may be held or absorbed by the stock, the floor may be overloaded to such a point as to cause it to give way. In old structures of this sort where wood beams are employed, the rupture may be so rapid as not to permit men below to get to a point of safety, even if they are on the alert for such a collapse. Thus again it is better to play safe and anticipate the failure of the floor and keep men out of the floors below where large quantities of water are being thrown on a fire above.

Stove Blamed for Loss of Life at Fire

The small stove shown in the photograph is blamed for a fire that swept through a hallway in a Japanese rooming house in Seattle, Wash., causing the death of seven white persons and the injury of fifteen others. The hand railing is an indication of how the flames licked up the stairs and prevented the roomers from escaping.

Son of Chief Rankin Dead

Charles Rankin, thirty years old, son of Deputy Chief Charles Rankin of the New York Fire Department, died as a result of gas poisoning. Both the young man and his wife were found dead in bed and the gas jet in the kitchen was found open. On the range was a pot of water, and from the evidence found, it is believed that during the night one of the two had risen to heat the water, and while waiting for the water to boil, had fallen asleep. The water had boiled over and extinguished the flame underneath.

A neighbor detected the gas fumes and spread the alarm. The couple had been married for five years.

PAY RAISE OF PITTSBURGH FIREMEN APPROVED AT POLLS

Bill Submitted to Legislature in 1927, and After Changes Was Submitted for Referendum Vote—New Scale of Salaries

By WILLIAM E. PATTERSON,
Bureau of Fire, Pittsburgh, Pa.

AT the last session of the Pennsylvania State Legislature a referendum bill was passed by this body authorizing the citizens of the City of Pittsburgh to vote on whether they favored an increase in wages to their Police and Firemen.

The bill was originally presented in the Session of 1927. In its original form made it mandatory on the part of the Mayor and City Council to grant the increase as set forth in said bill, if approved by the taxpayers.

The bill was passed but vetoed by the Governor; the same bill was again presented at the session of 1929 and passed, but the Governor refused to sign the bill unless the mandatory clause was stricken from the bill. On the advice of the sponser of the bill, the police and firemen agreed to change the bill to make it advisory instead of mandatory. This was the first time in the history of the State of Pennsylvania that a referendum bill was ever approved other than for a constitutional amendment of bond issue.

Before presenting their claims for an increase of wages to the people, the Committee of the Fraternal Order of Police, and the Officers of Local No. 1 International Association of Fire Fighters, who joined together as the Police and Firemen's Welfare Committee to work for the success of the referendum, had the promise of all candidates for Mayor and City Council, that if the people voted favorable that they would comply with their wishes. All labor bodies in the city endorsed resolutions favoring the increase, in addition to many fraternal, patriotic and civic bodies. In addition to this, every newspaper urged its readers to support the referendum.

In the primary election held on September 17th, 1929, the people approved the Police and Firemen's request for the increase by a vote of 117,617 for, and 40,903 against: the majority being 76,714 votes or 3 to 1.

The victory of the Police and Firemen is all the more remarkable by the fact that out of 741 voting districts in the city, 738 voted favorable, one district had a tie vote and two districts voted against it; one by a majority of 8 and the other by 6 votes.

(*Continued on page* 1102)

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

EVERY time that a fireman drives to a fire, he gambles with his home, his savings, and whatever other property he may have, unless the city protects him against personal suit by means of proper insurance.

Through a peculiar wording of the law, fire department operations are considered to be a governmental function, and a city can not be sued for failure to perform a governmental function. But although the city can not be sued for any injury caused by fire apparatus going to or returning from a fire, the law does not prevent the driver from being held liable for whatever damage may have resulted.

This is not justice. It is unfair for any city to expect a fireman to place his personal property as security for his job, and it is only through lack of foresight in some places that this condition continues.

The problem in full that is treated in this discussion appears in the box on this page. In the box on the following page is the problem that will be treated in the next issue. Should you have some comment that you would like to make, or if you have a question that you would like to see treated in this department, write to the Round Table Editor, FIRE ENGINEERING, 225 W. 34th Street, New York, N. Y.

HERE IS THE PROBLEM

Are drivers in your department protected by insurance against accident?

In view of the fact that drivers are held liable for accidents (city itself not being liable) do you consider it a good plan for cities to provide such insurance?

The Question

The majority of chiefs are in favor of insurance for drivers, even though such a plan may not yet be in force. A few are afraid that it may cause the drivers to be reckless. The replies received follow:

Geo. W. Bogardus, Chief, Norwalk, Conn.: Drivers in this department are not protected by insurance against any accidents that might occur in answering an alarm of fire or returning from a fire. They can be held responsible for any damage caused the apparatus they are operating. It is a well known and understood fact that apparatus when answering an alarm of fire or other emergency call shall have the right of way over all other vehicles. This is a state as well as a city law. However, this does not always constitute protection for the driver against a law suit. Some cities view the matter of providing protection for drivers of fire apparatus with alarm. They believe that if the driver is protected against suit for damage caused by the apparatus which he is driving, he will not be so careful as he would if he himself is held responsible.

In my opinion this is a wrong attitude for any city to take regarding its fire apparatus drivers, as the majority of accidents are caused by persons not heeding the warning sirens and bells on approaching apparatus.

In view of the fact that drivers are held liable for accidents (this city itself not being liable), I consider it a good plan for any city to provide such insurance. At the present time we are working on a plan to provide protection for all drivers in this department and I am hoping this will be successful.

W. H. Fuller, Chief, Viksburg, Miss.: Drivers in this department are not protected by any accident insurance. As decisions arrived at by the Supreme Court have been that a municipality cannot be held liable for damages caused by the fire department due to the fact that this department has right of way, I don't believe a driver would be held for such accidents. If a municipality could secure liability insurance at a reasonable rate, I think it would be a good thing to have. However, the rate is so high that in most cases the city is not willing to undertake this proposition.

Samuel H. Jeffries, Chief, Wilkinsburg, Pa.: Yes, the Borough of Wilkinsburg carries insurance on all chauffeurs and also the apparatus. This is done to protect the drivers and the public against accidents.

I think every person driving an automobile, regardless of whether it belongs to the city or to a private individual, should carry insurance to protect themselves and also others. In my opinion, if a person has enough money to purchase a car he should also be able to carry insurance on it. I see accidents almost every day and in many instances a little insurance would have been a great help to the driver in trouble and also to everyone else involved.

E. A. Logan ,Chief, Shrewsbury, Mass.: At the present time the drivers in our department are not protected by insurance and are personally responsible for any accident that may occur. On the other hand, we have been unable to find a law that gives us the right to insure said drivers.

I am firmly of the opinion that not only the drivers of our department, but every member of the department, should be protected by insurance both against accident in which they injure other persons and also against accident in which they themselves may be injured. There is an accident insurance policy at the present time which insures firemen in case of accident or sickness resulting from their activities at a fire. The cost of carrying this insurance is reasonable and I think every town should appropriate money yearly for this insurance. I believe that any chief can sell this insurance plan to his town with very little effort if he attempts to do so.

Hugh Cole, Chief, Rutherford, N. J.: The question presented is one that has been frequently discussed by the Officers' Association of the Rutherford Department. In view of the fact that drivers of fire apparatus have been held liable for accidents in some cities and made to suffer even the loss of their homes and life savings, it is my opinion that it is a good plan for cities to provide such insurance. In the fifteen years that motor driven apparatus have been in use here we have had no accidents. We have a hard and fast rule for rapid but sane driving. However, accidents are liable to occur at any time, and for this year our drivers, and, in fact, our entire personnel, are covered by insurance.

A. S. Kingman, Asst. Chief, Cedar Falls, Ia.: Our water works is owned by the city and we therefore receive excellent co-operation. The city engineer and the fire chief co-operate as much as possible as they both realize the value of water supply at fires. They also realize that too much stress cannot be put on fire protection.

The city council has great faith in the judgment of these men and for this reason they usually secure what they ask for. When the subject of a change in water mains comes up, or the laying of new mains is under consideration, the size of same is left entirely to the city engineer and the fire chief.

T. M. Cook, Chief, Valdosta, Ga.: This city carries compensation insurance on all firemen. Accident insurance is also carried on the trucks. A $10,000 liability policy is carried on the chief's car. I think my city has its drivers well protected against accidents and certainly believe it is the proper thing to do.

A. S. Kingman, Asst. Chief, Cedar Falls, Ia.: Our drivers are not protected against accident by insurance. However, I feel sure that in the event of an accident occurring the city would take care of the damage.

As outside concerns are liable for their agents, I would certainly like to know why a city is not liable for its agents, the truck drivers. If the law stipulates that a city is not liable, in my opinion they are morally liable to their citizens to see that they are protected against loss by the acts of their fire truck drivers.

Wm. J. Joyce, Chief, Spokane, Wash.: One of our assistant chiefs is now being sued for damages on account of an accident that occurred this summer. The city's legal staff is defending him but it remains to be seen whether or not it reimburses him for any judgment that may be secured against him.

I certainly believe the city should insure drivers against accident.

Arthur Rahn, Chief, Two Rivers, Wis.: My drivers have all been protected by insurance for the past three years. I think it is one of the greatest necessities for protection there is in these days of traffic problems. I know of several cases in neighboring cities where firemen have lost their homes and properties fighting cases where the city should have protected them. The least any city can do is carry property damage and liability insurance on their firemen.

M. P. Burns, Chief, Tyler, Texas: Our drivers are not insured against accident. However they are not held liable for any damage done. The city takes care of this. If a fireman is hurt while on duty, the city allows his salary until such time as he is able to again perform his duties. The courts held that it is unconstitutional for cities to carry insurance on their employees.

R. W. Cameron, Chief, Eureka, Cal.: Yes, drivers in this department are protected. Both men and machines are insured by the city for liability and property damage.

I certainly believe it is good policy for the city to insure the men and machines. We have a speed limit of forty miles per hour on all machines going to fires and have had no accidents. In case of an accident it would be a hardship for the men to pay the damage.

F. C. Brown, Chief, Fairybury, Neb.: All of our firemen are protected by insurance, whether they have an accident while on the apparatus or while at work. However, we have no liability insurance, in the event of an accident occurring, to take care of anyone else being injured.

I think all firemen should be protected by the city as their work is more or less hazardous and it is a job where the saving of time is an important factor. To my mind the work of a department is hindered where the men are not protected by insurance.

There may be people who think that insurance would tend to make drivers careless. The condition can be handled by the head of the department. If a driver is found to be careless he should be transferred to a different position. I think this would take care of any careless driving.

Earl J. Reynolds, Chief, LaPorte, Ind.: The only insurance here is the insurance that drivers themselves carry for protection against accident. I have yet to meet a driver of fire apparatus who is in a position to pay damages for any great amount. As long as firemen are conscientious in their work, I believe the city should carry insurance to protect them in case of accident. Very seldom does it happen that a driver of fire apparatus deliberately causes an accident. In most cases the public is at fault and for this reason the public or the city should carry the insurance.

HERE IS THE PROBLEM FOR THE NEXT ISSUE

Do you make particular effort by inspection, etc., to prevent fire in stores during the Christmas shopping season?

What special precautions do you consider necessary?

Edmund E. Schram, Chief, North Platte, Nebr.: My drivers are covered by insurance, and the city is liable for any accidents that occur. I certainly believe all firemen should be insured. There are times when accidents are unavoidable and I see no reason why the men should be held for any accidents that might occur when they are endeavoring to get to a fire as quickly as possible in order to save life and property. Drivers do not deliberately cause accidents and for this reason it is up to the city to protect them.

Clive K. Dall, Chief, Delaware, Ohio: No, our drivers are not insured against accident. The city carries state compensation and of course drivers are protected insofar as their own injuries are concerned but not against injury to others.

Where cities hold their drivers liable for all damage it is no more than right that they should be protected by insurance.

W. O. Horner, Chief, Cleveland, Tenn.: I have been trying for some time to get our city to carry accident insurance for the entire department, but so far have failed. To my mind all persons connected with the department should be insured by the city.

Louis McLane, Chief, Charleston, W. Va.: Drivers in this department are not protected by insurance against accident. The city has an ordinance whereby it is not liable for accidents caused by apparatus responding to a fire. This would take care of the driver in the event of an accident. I do believe the city and not the driver would be liable.

I think drivers should be paid more than regular firemen as there is a great responsibility laid upon him. If this was done he could afford to pay the premium for accident insurance himself.

Thos. Walden, Chief, Columbia, Mo.: Our drivers are not protected by insurance against accident. In my opinion they should be held responsible for reckless driving. I personally would rather the apparatus arrive a few minutes late than to have it driven recklessly. If the driver knows he will be held responsible he is more careful than if someone else is responsible

Philip Ham, Chief, Everett, Mass.: Drivers in this department are not insured against accident. In my opinion every city should insure the drivers of fire apparatus against accident. The men are expected to make time when responding to an alarm and I think it is unfair to ask them to assume responsibility in the event of accident.

August Emrich, Chief, Baltimore, Md.: All members of the fire department, including drivers, are protected by insurance against accidents.

Drivers of the fire department of Baltimore are not held liable for accidents. The city is responsible for damages and these are adjusted through the city solicitor.

Dewey Wills, Chief, Raton, N. Mex.: I think drivers should be protected against accidents in every way possible. Our city is considering an indemnity policy that will cover drivers.

City ordinances require everything and everybody to go to the curb or sidewalk as soon as an alarm of fire is given.

E. G. Wheeler, Chief, Grinnell, Iowa: Our drivers are protected by insurance against accident. As a matter of fact, our entire organization, including thirty volunteers, are insured against accident either when responding to a fire, returning from a fire or working at a fire.

Adam A. Ritter, Chief Clifton, N. J.: I have been recommending insurance to the city for the past three years to protect drivers. In Passaic County drivers are held liable for accident and I surely consider it a good plan for cities to provide accident insurance to cover drivers of fire apparatus.

(*Continued on page* 1106)

To What Extent Should City Fire Departments Give Rural Aid?

From the Humanitarian Standpoint, There Should Be No Hesitation to Send Assistance to the Country Districts—Rural Equipment Should Be Standard

By CHIEF JOHN H. MONROE, Fire Department, Savannah, Ga.

IN this paper Chief Monroe treats the matter of rural assistance from the humanitarian standpoint, and claims that there should be no question as to going beyond the city limits by the Municipal Department in case of need.

The question of Rural Fire Fighting has been given much thought by the Fire Chiefs. I think that when we go into its consideration it is essential that we base our conclusions and find our convictions on the cardinal principle of all good governments, namely, "The greatest good to the greatest number."

Chief John H. Monroe, Savannah, Ga.

In modern civilization two of society's greatest enemies are disease and fire. There is not and there cannot be any criticism of a united effort on the part of a community to stamp out disease even though it is necessary to go beyond the confines or limits of the municipality to do so. Therefore, no criticism should exist when the fire department goes beyond its jurisdiction to exterminate society's other enemy "Fire."

It is is contended, and rightly so, that even though the property or citizen affected be not within the corporate limits of a town or city, still if he resides or has his property within a reasonable distance from that town or city, then, that which injures him or his property injures the whole community and it is the duty of the whole community to protect the individual.

Modern life has become so intricate and interwoven that we cannot draw too fine a line of demarcation. When that dread cry of "Fire" is raised by a member of the community, whether he resided within the corporate limits or not, it is the duty of the community to respond.

Always Answer Calls Beyond Corporate Limits

Heretofore, even while it was a violation of the law of Georgia under the Charter of Savannah to respond to fire calls beyond the corporate limits, Savannah always answered any call that came in for assistance. At the last session of the Georgia Legislature, I recommended that this law restricting Savannah from answering calls for assistance beyond the corporate limits be recinded, which was done.

Immediately adjacent to and surrounding the city of Savannah are millions of dollars worth of varied properties which are without adequate fire protection other than that gratitously furnished by the Savannah Fire Department.

These properties have a great bearing on the life of the community, furnishing employment and homes for thousands of our citizens and it is our firm conviction that we should furnish this protection without charge or cost. While it might appear that a few are bearing the expense of this protection, still it will be seen, upon full examination of the subject, that by so doing, the few are protecting their own vital interests.

If We Answer Calls from Cities Far Away, Why Not Our Neighbors?

When a city some hundreds of miles away calls for assistance in the form of apparatus and men, it is always cheerfully and speedily furnished free of charge, then why should we not render this same assistance to our very immediate neighbors who are members of our own community? As far as fire is concerned all communities must constitute an armed camp, prepared at all times to exert every effort to repel the invasion of fire from whatever quarter it may come. We cannot sit supinely by and permit the destruction of valuable property in our immediate vicinity when we are able to thwart the destruction even though it be at some expense to the municipal corporation.

Small Community Equipment Should Be Standard

It is my belief that there should be a more complete understanding of this subject among all citizens. When a small community near a larger town or city is installing its water supply it should call upon the authorities of the neighboring town or city and ascertain the particular types of equipment that they can install that will be of service to the neighboring Fire Department, if the need arise. All water connections and standpipes should be equipped so as to be immediately available to the equipment of the neighboring Fire Department in order that all means may be used in combatting a fire in the event the need develops. It is of little service to a small community to put in a system of water supply, if that system be not available to the neighboring Fire Department. A pumping engine and hose are of no value whatever if they cannot be connected up. There are various devices on the market designed to universalize fittings and hose and to some extent they are practicable. The apparatus of the Savannah Fire Department are all equipped with leading makes of these devices, but the problem would be greatly simplified if the equipment of the smaller surrounding villages were standard

"AS far as fire is concerned all communities must constitute an armed camp, prepared at all times to repel the invasion of fire from whatever quarter it may come. We cannot sit supinely by and permit the destruction of valuable property in our immediate vicinity when we are able to thwart the destruction, even though it be at some expense to the municipal corporation."

equipment. A makeshift device is always, at best, only a makeshift.

When Fire Is Beyond Control, Larger City Must Aid

The time honored fire-brigade is still very effective in the smaller community, but when a fire gets beyond the control of the smaller organization, it is the duty of the larger and better equipped organization of the neighboring city to respond and control the situation. Realizing this fact, the Savannah Fire Department has taken all possible steps to be in a position to render this aid. On our combination pumpers and hose wagons we have installed large capacity water tanks which are directly connected to the large pumps in order that when we reach a fire where no water or proper connection is available, the water may be pumped out of these tanks and the tanks constantly refilled (while pumping) by any means available, buckets, small hose or what not. We find this tank system to be a very valuable adjunct in controlling fires beyond the city limits where water supply is not available or where direct connection cannot be made to the supply that is available.

Large Capacity Water Tanks Very Useful

These tanks, we find, are far more satisfactory in every way in town and city service, than the old chemical tanks were, and equipped as they are with by-passes, are exceptionally well suited for wall fires, etc. Of course, we also carry the usual and regulation equipment and utilized hand extinguishers. I have recently converted a chemical engine, which carried two fifty-gallon tanks and one forty-gallon tank, into a hose wagon. I have taken the hose body off of one pumper and installed a 350-gallon water tank to be operated directly through the large pump, this apparatus to take the place of the chemical engine. This apparatus alone can extinguish a large fire and will be quite an important machine rendering assistance at fires outside the corporate limits of the city.

There have been a number of times when the Savannah Fire Department has been called beyond the corporate limits of the city and succeeded in controlling fires that were threatening property worth millions of dollars. A service of this character must be performed and any community that fails so to do is failing to protect its own vital interest.

Fire is a common enemy and when a far flung unit of the community is threatened it is the duty of the whole community as represented by the larger department to defend.

Rural Service Rendered Free

A census of rural fire fighting has been made and it is the opinion of the majority of the Chiefs that every assistance should be furnished the rural districts but the question arises as to whether this service should be gratis or paid for. I will state that as far as Savannah, Ga., is concerned this service is rendered free and our position is, that the question of money should never be considered when it comes to saving lives and property.

(From a paper read before the annual convention of the International Association of Fire Chiefs at Birmingham, Ala.)

Firemen Overcome at Brooklyn, N. Y., Fire

Three alarms were turned in to fight a blaze in a two-story chair and case goods factory in Brooklyn, N. Y. Persons in adjoining tenements were ordered out as a safety measure. The above photograph shows members of the department reviving a fireman who was overcome by smoke.

CHIEF WILLIAM B. CODY OF ATLANTA DIES IN HOSPITAL

Celebrated His Fifty-First Anniversary Last July — Stricken Month Ago with Paralysis and Suffered a Relapse in His Home

ONE of the most colorful characters in present-day fire department circles has passed away. The end came for Chief William B. Cody of Atlanta, Ga., in a local hospital where he was taken after suffering a setback from paralysis. He was seventy-one years old and had served the department for fifty-one years.

The chief had joined the department when he was three days shy of being twenty years old. He was born in Warrenton July 9, 1858 and had come to Atlanta when he was seventeen years old. Because of his love for horses he was made driver of Company No. 2. He held this post until the paid fire department was organized. Cody fought fires for the love of it. When the sport was made a profession he attempted to resign but was dissuaded.

The Late Chief W. B. Cody

In 1892 he was made a lieutenant and then three years later he became a captain. It was while serving as a captain of No. 4 company that he was elected chief on July 4, 1915. Several years ago, by civil service provision, he was made chief for life.

When the chief joined the department he put aside a pack of cards, each year upon the anniversary of his joining the department, he tore one card from the deck. It was his hope to outlive the cards. But in this he failed. One card, the Queen of Clubs, remains. The fire department has claimed this as a momento of a chief who was respected and honored by his subordinates and city residents.

Chief Cody was married twice. There were three children from the first union, two of whom are now living. Four children resulted from the second marriage. He is survived by his children, his widow and two sisters.

The chief was of Irish stock and was a cousin of the famous "Buffalo Bill" Cody although he never attempted to gain honor because of this relationship.

New Private Alarm System in Lewiston

Chief Charles E. Fortin, of the Lewiston, Me., fire department, has placed in service a new auxiliary fire alarm system connecting the fire department with twelve local concerns. The new system was devised by Chief Fortin and will, it is claimed, result in a lowering of insurance rates in the properties affected.

The installation was supervised by Kenneth Kirk, superintendent of fire and police alarm systems. The alarm is connected with the automatic sprinklers in the various buildings and whenever a sprinkler operates either because of a fire or defect an alarm is transmitted to fire headquarters.

A special tapper and gong have been installed to handle the calls from this system. Each building is equipped also with a fire alarm box which may be operated either manually or automatically. All wires have been laid underground.

Engine Company No. 2 has been assigned to answer these special calls and six extra sprinkler heads are carried as part of the equipment of the company.

HARRY BELKNAP.

Many Applicants for Portland, Ore.—Seven hundred applicants appeared for examination for positions in the Portland, Ore., fire department. The tests were arranged by Chief Grenfell and Assistant Chief James Dillane.

More Firemen Needed in Eau Claire, Wis.—Chief James P. Welsh of Eau Claire, Wis., has requested that additional men be added to the department, and that a 1,000-gallon pumper be purchased. The recommendations were placed on file.

WITH THE EDITOR

Preparing for Christmas

In all parts of the country firemen are busy at their Christmas charity work. This activity consists of the reconstruction of ancient and broken toys, discarded by children of well-to-do parents and donated for this purpose. On these toys, collected in large numbers, the men have been working in many cases for months. The Fire Department often includes in its ranks men who have learned the carpentry, painting and other trades, and these individuals are glad to keep their hand in by working on the reconstruction of these toys for the benefit of poor children of the community, who otherwise would not enjoy the pleasures of the Christmas Season.

This work, originating in one or two departments, has spread throughout the country and has become quite general among firemen. The response among people of means has been most encouraging, and occasionally the men are given toys that are in such fair condition that they need very little touching up to make them as good as new. However, the men by no means rely upon material of this kind. Often the toys donated are so badly worn or broken that it would seem impossible to a layman to restore them. But, under the skilled hands of the men, working in their spare time, a transformation takes place and the shining new articles that result would bring joy to the heart of the most captious youngster.

At Christmastide these toys are distributed, usually through the agency of a "Santa Claus", impersonated by one of the members of the department. That such "Christmas Trees" are now looked forward to with the utmost anticipation by the unfortunate youngsters of the city goes without saying. The result certainly rewards all of the men who take part in this philanthropic work for the time they have given to it. They deserve all the credit that can be given them.

Pumper or Increased Pressure?

Occasionally the small town daily is responsible for words of wisdom when dealing with matters of fire prevention and fire fighting, though, unfortunately, the reverse is ofttimes the case. A notable instance of the former appeared in the columns of a mid-Western paper of a recent issue. It seems that the town had suffered a serious fire loss, owing to lack of pressure. The comments on this event follow in part:

"—— celebrated Fire Prevention Week by burning down two homes and saving another one. If an ounce of prevention is worth a pound of cure then our fire protection isn't worth much. One of the homes that was burned was outside of the borough but a stream of water pumped from a nearby stream would have saved the home, and no community can afford to lose many homes. The parties who owned it paid taxes to the borough for fire protection and in the emergency did not get it. Instead they suffered a loss which could have been prevented had adequate fire fighting equipment been provided.

"A lot of our conservatives are fond of placing the blame for such things on the water company, but it is not up to the water company to buy fire apparatus for the town.

"There is lots of water in the mains, but there is very little pressure in some parts of town. With a fire pumper we could get the use of that water. . . .

"The day after a number of the buildings in the square have burned the wise boys will rest their chins in their hands and begin to realize that possibly we haven't done as much as we should in the matter of fire protection.

"Some of the so-called conservatives are not so conservative if their views are analyzed and pulled apart. They say we have spent so much money on our schools that we can't afford to buy more fire apparatus. We have an investment of about $200,000 in public school buildings and we can't afford to be without protection. We have industries that are bread and butter to the town and, under present conditions should any one of them burn, we hesitate to prophesy whether it would be rebuilt or not. . . .

"The fire truck we have is alright as far as it goes, but it doesn't go very far. It carries some hose, which is useless in some parts of town, and some chemical apparatus which does good work if it gets there in time. A pumper is the only solution."

There is no doubt that, especially in cases where the water pressure is none too good, and in fact, in every case where quick action in handling a large fire is needed, the pumper is the logical apparatus for the Fire Department. If it is a question of raising the pressure at the pumping station of the Water Works, in case of fire, with the danger of rupturing the services of the consumers not fitted for such extra strain, then the pumper is certainly a great advantage and is worth its price to the citizens, not to speak, of the saving in fire loss such an apparatus will make by preventing small fires from spreading to those of large extent.

About Time to Call a Halt

Is it not about time to call a halt to the bringing out of the Fire Department every time any occurrence out of the ordinary transpires, and for objects that the Police Department would consider it beneath its dignity to notice?

Of late this tendency to summon the Fire Department whenever a citizen has need of extra strenuous service has been on the increase. Only last month, in two of our largest cities—New York and Chicago—the firemen were called to rescue pet birds which either had escaped or were in trouble. In the case of Chicago, a woman's canary escaped and she at once, as if by in-

stinct, pulled a fire box, bringing some two hundred firemen and several pieces of apparatus to the rescue. In New York City, a pigeon had caught its foot in a piece of cloth at a height, and again the Fire Department was summoned. A truckman climbed a church steeple and rescued the bird.

Very fine and very heroic! But is that what the Fire Department is for? We have a humane society—why not equip it with ladders and teach its men calisthenics, so that they can perform heroic deeds in rescuing animals and birds that are in trouble? This would give the firemen more time to attend to their legitimate service—the handling of fires.

Of course it is a very splendid thing for the Fire Department to step into the breach in disasters and in the rescue of unfortunate human beings who have been injured. They are well equipped for this service, are specially trained for it and never will hesitate to give whatever aid may be needed cheerfully and efficiently. But what seems unnecessary and a waste of the city's funds is the use of the department for service which properly belongs to the society formed for the purpose—the rescue and care of animals in distress.

SOME PROBLEMS THAT CONFRONT N. Y. FIRE PREVENTION BUREAU

Department in Charge of Peter E. Spence for Many Years — Address Given Before Employees of New York Central Railroad

By WM. JEROME DALY

A RESUME of some of the latter-day hazards confronting the Fire Department of New York City was given recently by Peter C. Spence, Chief of the Bureau of Fire Prevention of the New York Fire Department before a large assemblage of employees of the New York Central Lines engaged in fire protection and prevention work on the properties of that corporation. It was delivered in the ball room of the Hotel Commodore as part of Fire Prevention program.

Peter E. Spence

Chief Spence, is a civilian members of the New York Fire Department, but he is the statutory head of the Bureau of Fire Prevention. He holds the degrees of B.S. and C.E. from New York University in 1888 and has seen service in various engineering capacities in the Department of Buildings, the Department of Docks and the State Labor Department where he was an expert in building construction and fire prevention.

He came to the New York Fire Department in 1922 to succeed Dr. William F. Doyle, who retired on a pension. In an address replete with interesting information, much of which was statistical, Chief Spence dwelt with emphasis on the following comparatively new features of fire prevention. He said in part:

"Some idea of the potential hazards to life and property from fire may be gained by considering that there are 674,541 automobiles registered in New York City and nobody knows how many more are here but registered in other states. The volatile inflammable oil in the fuel tanks of these automobiles, the additional amount stored in garages and gas selling stations, the quantity in transit from refineries as well as the stock on hand would aggregate 50,000,000 gallons a day in this city. This commodity alone presents a serious hazard in New York City."

The fire prevention chief then discussed the gasoline tank truck and the fact that there are 200 of 1,500 gallons capacity each; also 2,341 gasoline selling stations, which number when added to the number of storage garages makes an approximate total of 5,000 places dispensing gasoline from buried storage systems.

Chief Spence declared that there has never been a buried tank storage of gasoline or fuel oil explode or even catch fire in New York City. There are over 500 tons of motion picture film in the vaults of various exchanges and agencies, in addition to the amount carried in the motion picture houses and the "movie" theatres.

"In the manufacture of dress ornaments, household articles and accessories" Chief Spence declared, "pyroxylin plastic compounds known as pyralin, fiberoid, xylonite, viscoloid, Parisian ivory, French ivory, and ivortone are used. These materials are of a nitro-cellulose base and they decompose and emit an explosive gas at temperatures somewhat higher than the boiling point of water. They require protection and supervision in their manufacture and storage, if safety to life is to be secured. About two tons of this material is used daily under permits issued by the Fire Department and since the Code of Ordinances has been amended requiring sprinkler protection, ventilation and fireproof construction for storage of such materials, the loss of life in factory buildings, particularly that loss due to exit conditions, has been practically nil.

"In excavating for the construction of New York City's new $600,000,000 subway system as well as the building of other structures and construction operations, over three and a half tons of dynamite are detonated daily. The storage and use of this explosive is regulated by the Code of Ordinances. What is considered an improvement in local shaft and tunnel dynamiting is the "delay-action" blasting caps. At an interval of a few seconds between each round of delays, the dynamite is exploded in rotation; this relieves the concussion and the resulting gases are ventilated before workmen enter to remove the muck or to scale the loose pieces from the tunnel ceiling."

Chief Spence cited an instance of a match drawn up into a domestic vacuum cleaner. The machine was placed in a closet; the closet caught fire from the machine and the house was demolished.

The railroad fire preventionists were told that locomotive round houses containing more than 15,000 square feet between fire walls require standpipe protection in New York City under the existing Code of Ordinances. He warned them about the use and handling of fuel oil in railroad shops for forge work, heating, etc.

As a reaction due to the fatal fire in the Cleveland Clinic last May, Chief Spence said, an ordinance has been enacted by the New York Board of Aldermen prohibiting the use of nitro-cellulose X-ray film. This ordinance has been in effect since October 1 this year. Such film in the form of records is required to be stored and protected but none of it shall remain in any building in New York City after September 1, 1932. In the future only film of the acetate base can be used and three years is allowed in which to get rid of the nitro-cellulose film.

The address was concluded with:

THE SAME OLD STORY

The fire had burned the livelong night
The building was demolished quite—
The janitor, when asked the cause,
Cried out without a moment's pause,
"Excelsior" ! ! !

Atwater, Ohio, to Reorganize Service—The Fire Department of Atwater, Ohio, is to be reorganized, and funds raised for the purchase of a new pumper.

Centerville, Ia., Firemen Insured—Policies have been taken out to offer financial protection to firemen of Centerville, Ia., in case of accident.

Saginaw, Mich., Plans Fire Alarm—A new fire alarm headquarters and a building code are contemplated in Saginaw, Mich.

Firemen Helpless at Pennsylvania Fire—Four homes burned down in Shephardstown, near Harrisburg, Pa., while firemen from Harrisburg and suburban towns fought the blaze with chemicals when the water supply was exhausted. Fourteen persons were made homeless.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Capacity of Engine

To the Editor:

I would greatly appreciate an early reply to the following questions:

Question 1. Assume a 750-gallon pumper is drafting. The layout is three one hundred-foot lines into a deluge set and the pump is discharging its rated capacity at 120 pounds pressure.

Can the pump pressure be increased under the above conditions, that is, when it is discharging its rated capacity at 120 pounds pump pressure?

What happens if the pump pressure is increased to 200 pounds? To 250 pounds? Is the discharge increased or decreased when the pressure is increased as above?

Yours very truly,

R. C. A.

Answer: If the engine is of sufficient power to give its rated discharge at more than its rated pressure of 120 pounds, the pump pressure can be increased while the discharge remains constant. This is done by throttling the discharge gates through which the three lines are fed. On the other hand, if the power of the engine is not sufficient to carry a greater discharge than its rated capacity at 120 pounds pressure, no increase in discharge can be secured. If the discharge gates are not manipulated at all but are left in the same position as when the engine is discharging its rated capacity at 120 pounds pump pressure, but the engine is speeded up, both greater discharge and pressure will be secured—provided the engine is capable of carrying the additional load.

Should it be possible to increase the pump pressure to 200 or 250 pounds, while the machine is discharging its rated capacity, it will be doing far more work than the specifications call for. It is very unlikely that any average pumper could be expected to give its rated capacity at 200 pounds pressure, instead of 120 pounds.

Assume, however, that it is possible to raise the pressure at the pump to 200 or 250 pounds. If the layout is not changed, and if the discharge gates are not manipulated, the discharge will be increased at the nozzle. The reason for this is self evident: the greater the pressure at the engine, the greater the pressure at the nozzle, and consequently the greater the discharge at the nozzle. Of course, there will be an increased friction loss due to the greater flow through the line, but nevertheless the nozzle pressure will increase to a certain extent, producing an increased discharge.

Heat, Pumpers, etc.

To the Editor:

I will appreciate your answering the following questions in an early issue:

Question 1. How much heat will a gallon of water absorb?

Question 2. What are the different heat names? For example, gasoline has a flash point of 1° F. What named heat causes it to flash? Our body heat is around 97° F., and this higher degree of heat will not cause it to flash. Why? And what is the name given to this body heat? How much of this heat will cause it to flash?

Question 3. In a rotary pumper, what is the function of the churn valve, and is it necessary that one should be there? Or could we do without it. Without it, what trouble or disadvantages would be experienced?

Question 4. What are the functions of the "capacity" and "pressure" levers? When should they be properly used?

Question 5. Give a concise scientific definition of "pressure."

Question 6. Is there a way of estimating the amount of gasoline consumed by the operating of pumps at a fire, according to the time pumps have been working? If there is, please explain.

Question 7. Is the height of a 75-foot aerial ladder estimated from its turn table or from the wheel base? What are the actual lengths of bed ladders and fly ladders of same? Also, of a 45-foot extension ladder?

Question 8. How is the power obtained which forces the fluid in a 3½-gallon extinguisher through its hose and out the nozzle? Is it caused by heat, or expansion, or what?

Yours truly,

A. L.

Answer 1. In the first place, we must have some unit of heat to determine the answer. The unit commonly employed is a B.T.U., or British Thermal Unit. It is the amount of heat necessary to raise 1 pound of water 1° F. One British Thermal Unit is equal, in mechanical terms to 778 pounds of work, or the work required to raise 778 pounds 1 foot high.

It requires approximately 8⅓ British Thermal Units to raise 1 gallon of water 1° F.

To raise one pound of water from freezing temperature to boiling temperature (30° F. to 212° F.) would require 180 British Thermal Units. To raise a gallon of water the same range of temperature would require 8⅓ times as many British Thermal Units or approximately 1,500 British Thermal Units. In other words if water is taken at freezing point it will absorb 1,500 British Thermal Units before it is brought up to boiling point.

Answer 2. Heat is the same no matter in what manner it is used; 97° heat of the human body is exactly the same as 97° in any other material. You are probably a little confused as to the meaning of "flash point." The flash point of an inflammable liquid is that point at which the liquid will give off vapors which will ignite upon contact with some source of ignition. Flash point does not mean the temperature which will ignite the liquid, but rather the temperature at which the liquid throws off fumes which are ignitable. Furthermore the flash point of the liquid is not its ignition point. Also, the temperature of ignition of the fumes given off by an inflammable liquid is not the temperature at which the liquid itself will ignite.

Were gasoline, for example, heated to 97° F., it would throw off far greater quantities of fumes per unit of time than it would at the lower temperature of 1° F.

There are different scales of temperatures such as Fahrenheit, Centigrade and Reaumur for recording temperature. They have a definite relation to each other, which relation is unchanged no matter what materials are being tested for temperature. In the Fahrenheit scale, freezing point is taken at 32° and boiling point at 212°. In the Centigrade scale, freezing point is called zero and boiling point is called 100°. In the Reaumur scale, freezing point is called zero and boiling point 80°.

Answer 3. The churn valve controls the by-pass connecting the suction and discharge chambers of the pump. With this valve open and the discharge gate closed, water passes from one chamber to the other and continues to circulate through the pump over and over again.

The purpose of the churn valve is to permit the shutting down of the water passing through the lines of hose, whenever desired, without stopping the pump, an operation that would otherwise be necessary.

With the pump in operation, churn valve open and dis-

charge gate closed, it is possible to instantly furnish as many streams of water as there are hose lines connected to the pump, by simply opening the proper discharge gates and closing the churn valve.

When starting the pump at a fire, it is necessary to open one of the discharge gates and then close the churn valve. The pump gears then discharge all air there may be in the pump chamber into the hose and also draw such air as there may be in the suction, through the pump. This act of exhausting the air in the suction and pump creates a vacuum which allows atmospheric pressure to force water into the pump, from which it may be discharged under various pressures.

In case the water pressure at the hydrant is sufficient for the conditions met with at a fire, the pump need not be started at all. Simply connect the suction to the hydrant and a hose line to the pump; then by opening the churn valve, the water enters the suction chamber of pump from where it passes through the by-pass controlled by the churn valve and out through the hose. At any time that increased pressure should be required, it is only necessary to start the fire pump and then close the churn valve.

From the above you will note that while the churn valve could be dispensed with, it would necessitate a lot of extra work in connection with operating the pumper. For example, each time the lines were to be shut off, the engine would have to be stopped.

Answer 4. The discharge and pressure created by any pump is dependent primarily upon the power of the motor. Where the discharge remains constant, the higher the pressure that is created, the greater will be the power required to deliver the water. Thus, for example, if we are discharging from a pump 1000 per minute at 100 pounds pressure, and we increase the discharge pressure to 200 pounds, we would require twice as much power from the motor. Motors are not built with unlimited power and for that reason if much higher pressures are required at a fire than the engine is capable of giving when operating at its full capacity, the engine must be geared down into the pump so that we will still have sufficient power in the motor to turn it over without laboring. This gear reduction means that the pump will turn over at a lower speed and, consequently, give a lower discharge. In other words, the higher the pressures we demand at the discharge of the pump, the less water we can expect from the pump.

In the pump you refer to, the "pressure" and "capacity" gear ratios are designed to take care of the conditions implied by their designation. Where it is found necessary to carry a high pump pressure, for example, over 150 pounds, the "pressure" ratio or speed should be used. If quantity of water is desired, the "capacity" ratio should be used; such a condition would call for three or four short hose lines, or short lines with large nozzles. To produce quantity at the nozzle of a long line of hose, it is necessary to establish a high pump pressure in order to overcome the loss by friction in the hose; to accomplish this the "pressure" ratio should be used.

After an operator has acquired sufficient driving experience to instinctively know when to shift gears in driving, this knowledge will materially assist in the selection of the proper gear ratios when pumping. For instance, while ascending a hill the motor will slow down and begin to labor (if the hill is steep enough); under such conditions naturally the operator would shift into a lower gear. This allows the motor to speed up and carry the load while the speed of the apparatus remains the same or even possibly increases; the same holds true of pumping. Should the operator, by mistake, have misjudged the layout of hose and nozzle and started to pump in "capacity" the motor would immediately commence to labor and pound when the operator tried to increase the pump pressure. This is his cue to slow down and put the pump into the "pressure" gear ratio, just as he drops into a lower gear in climbing the hill.

In answering an alarm, suppose the operator has started in first speed as he should, and then goes into second but has forgotten to go into high or direct drive—his motor would be racing, but the apparatus would not attain much speed until the gears were shifted into high. The same applies to pumping. Should a mistake be made in judging the layout of hose and nozzles—a short layout and large nozzles or two or three lines and "pressure" gears engaged, the motor would race without producing any degree of pump pressure. Under such conditions the obvious thing to do is to shift to "capacity" gear.

Pumper gear shifting is accomplished in the engine you refer to by lifting the lever and moving it into either the "capacity" or "pressure" side of the gate as required, lower lever slowly at the same time opening throttle slightly as the motor picks up the load of the pump. Next open the discharge gates to which hose lines are attached. Close churn valve. Speed up the motor slightly and water should then be obtained in a few seconds.

Answer 5. Pressure is the action of a force against some opposing force. For example, if we compress a block of India rubber between two surfaces, that block of India rubber will exert a pressure against each of these surfaces (but in opposite directions). It is probably simpler to consider pressure as a force, which may be caused by any of a great number of conditions. As an example, a locomotive pushing a train of cars exerts a pressure on the coupling of this train; the weight of water in a standpipe creates or exerts a pressure on the interior walls of the standpipe, and so on.

Answer 6. There is no exact way of estimating the amount of gasoline consumed by a pump operating at a fire, based on the time it has been working. Here's the reason: at one fire a pump may be operating under very high pressure and at the maximum power of the engine while at another fire it may be idling along under only half of its load. In the first case it would be consuming far more gasoline than it would in the second. The amount of gasoline consumed by a pumper varies quite closely with the amount of work being done by the pumper. The more work being done, the greater the amount of gasoline being used per unit of time. For this reason any estimates of the consumption of gasoline based upon the time the pumper is in service would be likely to be far from the actual consumption.

Answer 7: The height of an aerial ladder is usually taken from the ground to the tip, when extended. In other words a 75-foot aerial ladder will reach a point 75 feet above the street.

While the length of bed ladders in different makes of aerial ladders may vary, the two ladders which go to make up the 75-foot aerial ladders are in the neighborhood of 42 feet in length each.

With a 45-foot extension ladder, the two sections are in the neighborhood of 28 ft. each.

Answer 8: The pressure which forces the discharge from a 3-gallon soda and acid extinguisher is created by the generation of carbon dioxide gas within the extinguisher. When the acid and the soda solutions are brought together, the acid acts upon the soda in the solution, generating carbon dioxide gas. This gas accumulates above the liquid in the extinguishers and creates a pressure in the neighborhood of 125 pounds, which serves as the expelling medium for forcing the discharge from the extinguisher.

Fire Traps Workers in Old-Style Building

Two men were burned to death and fifteen others who were trapped found ways of reaching points of safety. The blaze broke out in an old style loft building on Sixth Avenue, New York City. Over one hundred persons employed in the building rushed down fire escapes to the street.

Painters Against Work of Firemen—The painters' union in Kokomo, Ind., have protested against the employment of firemen in painting the interior of a fire station.

TWO BLOCKS DESTROYED BY SEVERE LUMBER YARD FIRE

Aid Rushed from Nine Neighboring Communities—Sparks and Intense Heat Cause New Fires in Frame Constructed Homes

By WILLIAM E. PATTERSON,
Bureau of Fire, Pittsburgh, Pa.

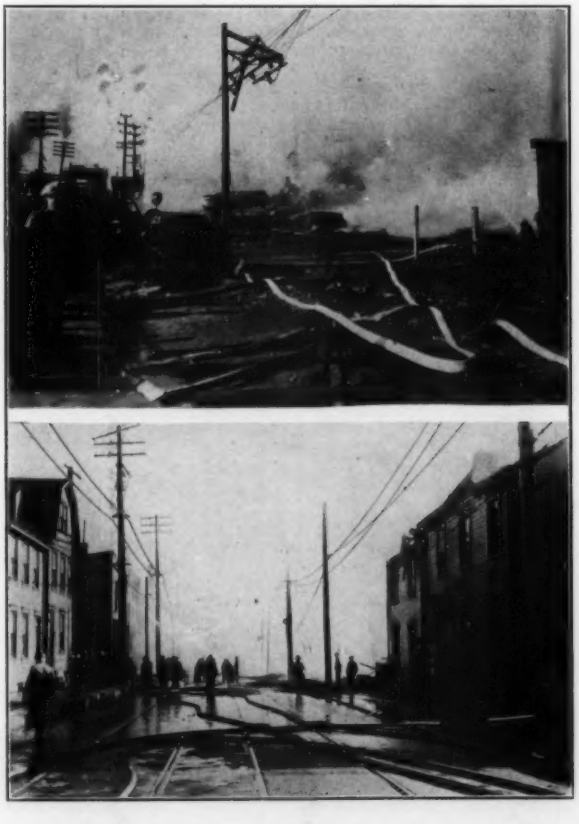
TWO blocks closely covered by frame construction were destroyed when a fire from an unknown cause started in the lumber yard of the Price & Alman Lumber Company, Braddock, Pa., ten miles east of Pittsburgh. Nine fire companies from surrounding towns under command of Chief T. K. Martin, of Braddock, had a most difficult fight. The flames caused $350,000 damage.

The lumber yard occupied almost an entire block in the center of a semi-business section.

The fire started shortly after one o'clock and had gained headway by the time the first company arrived. The intense heat prevented the firemen from doing good work at close range. Flying sparks ignited buildings adjoining the lumber yard and across the street.

Early in the fight, firemen gave up trying to save the lumber yard and attempted to prevent the flames from reaching surrounding buildings. Aid was requested from North Braddock, Rankin, East Pittsburgh, Swissvale, Homeville, Homestead, Duquesne and Whitaker. The private department from the Edgar Thompson plant of the U. S. Steel Corporation, Braddock, responded while Chief Samuel Jeffreys of Wilkinsburg, held his men in readiness to answer calls from Swissvale while the firemen from there were at the Braddock fire.

Two frame buildings adjoining the burning lumber yard were the first to go. Within a half hour five more dwellings of two and three story proportions were completely destroyed. At least six more houses caught fire from the great shower of sparks.



Upper—View of the Burning Lumber Yard. Lower—Trying to Save the Rows of Frame Dwellings Near the Fire

Streets near the burning lumber yard were stacked with furniture and household effects that were hurriedly carried from dwellings in the danger zone.

Five pumpers were in service at the fire and supplied fourteen good streams through one inch and one and one-quarter inch nozzles. There was 180 pounds pressure at the hydrants. Approximately seven thousand feet of hose were used—850 feet were completely destroyed by the fire. Four pumpers were of the 750 and 1,000-gallon size, while one was of the 350-gallon type.

The water supply of Braddock is taken from the Monongahela River and is pumped into a reservoir, which in turn feeds the distribution system by gravity. The supply can, therefore, be said to be inexhaustible.

Workers from the Salvation Army served the fire-fighters with hot coffee and doughnuts. Thousands of spectators gathered beyond the lines established by the police department, to watch the sights.

Six firemen and four school teachers were hurt in an automobile collision that was an indirect result of the fire. The crash occurred when the Braddock Police Patrol was rushing equipment to the scene.

There was also danger from high tension lines. Flames spread to the wooden poles carrying the lines, and when the cross arms gave way, the charged wires fell sputtering to the street. Employees of the public service company shut off the power supply.

The loss on the lumber yard was estimated at $250,000 while the loss on the surrounding property was estimated at $100,000.

Amusement Resorts Destroyed

Fire of undetermined origin destroyed part of the boardwalk and amusement section of Ocean City, Md. The

Ruins of Boardwalk and Concessions, Ocean City, Md.

space destroyed measured 125 by 250 feet and contained property owned by Rapapert Brothers and Playland.

The fire started in the rear of the frame two-story structure and when the fire department arrived, the men found the place completely ablaze. The men had it under control in about thirty minutes. Three pumpers and a ladder truck, under command of Chief Ralph R. Dennis, responded. Outside aid was called from Berlin, Salisbury, Snow Hill, Laurel, and Pocomoke, but only apparatus from Berlin was placed in service.

Although the boardwalk was crowded, the fire had a good headway before the department arrived. The damage has been estimated at $45,000.

Parker Heads Box 52 Association

P. Hildreth Parker was re-elected President of the Box 52 Association for the sixth term, at the annual meeting held in Boston. The other officers, all of whom were re-elected are: Bartlett Tyler, Vice-President; George W. Austin, Treasurer; Harry J. Rockett, Secretary; Frederick Blake, Assistant Secretary; William E. Dolan, C. Elmer Gane, Dr. Francis W. Regan, James G. Moulton, and Albert W. Daniels, Executive Committee.

Plans were made for the observance of the fortieth anniversary of the Thanksgiving Day fire of 1889, with a dinner at the Copley-Plaza Hotel. Chiefs of more than thirty departments which responded to the call for assistance at Boston's second largest conflagration, will attend.

Some time during the coming year the association will make an inspection of the Montreal Fire Department. Last spring the group inspected the New York Fire Department and reported a most enjoyable time.

Apartment House Destroyed by Disgruntled Employee

A disgruntled workman is believed responsible for the fire that destroyed the six-story apartment house nearing completion in West 183rd Street, New York City.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending November 15

LOS ANGELES, CAL.—Alpha Epsilon fraternity house..... 35
DE FREESTVILLE, N. Y.—Barns on farm of E. J. Gallogly.... 35
SEYMOUR, IND.—Plant of Buhner Fertilizer Co., 2 mi. E..... 125
TROY, PA.—Chase & Bailey garage..... 40
WACO, TEX.—R. E. Cox store, adj. property..... 175
MEMPHIS, TENN.—Britling Cafeteria destroyed..... 25
GALVESTON, TEX.—F. W. Woolworth store..... 25
ELYRIA, O.—Plant of Times Spring Co..... 75
SECAUCUS, N. J.—Warner-Quinlan Co. barge and river bridge. 100
N. TONAWANDA, N. Y.—Weatherbest Shingle Co. plant..... 200
PITTSBURGH, PA.—30th St. business bldg..... 40
FORT WORTH, TEX.—Ice storage bldg., T. & P. R. R. yds... 100
LAUDERDALE, MISS.—Lyle Brown store destroyed..... 35
ARVERNE, N. Y.—Property of Jacob Lipshitz..... 25
WORCESTER, MASS.—Front St. business block damaged..... 100
BROOKLYN, N. Y.—Factory bldg., 409 Oakland St..... 50
MORRISON, ILL.—Property of Rich Toy Co. & Ill. Refrig. Co.. 500
DENISON, IOWA—J. J. Miller bldg. adj. property..... 25
ELMIRA, N. Y.—Several business establishments..... 350
LOCKHART, TEX.—Business property destroyed..... 70
TRANQUILLITY, CAL.—Union High School destroyed..... 150
ELBOW LAKE, MINN.—Business and apt. property..... 35
ATLANTIC CITY, N. J.—Boardwalk business property..... 100
MONTVILLE, CONN.—Whse. of Robert Gair Co..... 25
TAMAQUA, PA.—Shirt factory and adj. property..... 80
FORT SMITH, ARK.—Property of Narisi Bros. destroyed..... 180
CYNTHIANA, KY.—Property of Harrison Co. Road Dept..... 25
HOBOKEN, N. J.—82-92 Madison St. property destroyed..... 65
GLENFIELD, PA.—Three bldgs. on Darlington estate..... 25
AYRSHIRE, IA.—Farmers' elevator destroyed..... 30
OTTAWA, ONT.—Plant of Capital Brass Works, Ltd..... 25
NEW SHARON, IA.—Walton Cafe, City Hall bldg. store destroyed 25
TRILLA, ILL.—Garage, general storage, church and barn, destroyed 30
BETHLEHEM, PA.—Smoke shop, candy shop and paper hanging and paint store..... 25

Week Ending November 22

FORT SNELLING, MINN.—Quartermaster bldg. south wing... 125
MEDFORD, MINN.—Linter cafe and adj. property..... 25
SHEBOYGAN, WIS.—Lakeview Hotel and garage..... 40
TROY, MONT.—Kinzie bldg. destroyed..... 25
FULLERTON, CAL.—Property in Olinda oil area..... 25
LAKE PROVIDENCE, LA.—Sheds of M. H. Brown Lumber Co. 65
PORTLAND, ORE.—Bldg. of Creamery Package Mfg. Co..... 25
THORSILD, ALTA.—Entire village destroyed..... 100
THREE RIVERS, QUE.—Wing of St. Joseph's Seminary..... 400
RANDOLPH, IOWA—West Side Cafe, Thomas drug store.... 25
SILOAM SPRING, ARK.—Citizens' Bank, adj. property..... 65
BLYTHEVILLE, ARK.—Ward apts., Philips Motor Co..... 65
LA SUEUR, MINN.—Elevator owned by R. E. Jones..... 40
LEVERETT, MASS.—Farm property of C. H. Beaman..... 25
SAN FRANCISCO, CAL.—Uni. of Cal. hospital..... 200
EDMONTON, ALTA.—McDougall school damaged..... 250
BREWSTER, WASH.—Green Parrot Cafe, adj. property..... 25
TROY, MONT.—Business and residential property..... 80
LONG BRANCH, N. J.—Jackson block destroyed..... 65
PHILADELPHIA, PA.—Four planes of Pitcairn Aviation, Inc. 40
E. STROUDSBURG, PA.—Bldg. of Franklin Ribbon Mills..... 50
LONG BRANCH, N. J.—Robitzchek boarding house destroyed.. 40
CINCINNATI, O.—Bldg. at 1275 West 6th St..... 45
DAYTON, O.—Eagle's clubhouse, Troy pike, north of here..... 25
TULARE, CAL.—Whse. on Tagus ranch 4 mi. north..... 80
COOPERSTOWN, N. D.—Business block destroyed..... 55
SAN FRANCISCO, CAL.—Plant of Gray & Danielson, adj. bldg. 275
HAZLETON, PA.— W. T. Grant store damaged..... 100
VIBORG, S. DAK.—Two business bldgs. destroyed..... 25
BARTONVILLE, ONT.—Plant of Cole Lumber Co..... 100

ALARM HEADQUARTERS AND NEW STATION OPENED IN NEWTON

Fire House Has Ample Accommodations for Officers and Men — Fire Alarm Building Located in Center of City Park

By HARRY BELKNAP

CHIEF Clarence R. Randlett, of Newton, Mass., is being congratulated by his fellow chiefs throughout New England upon the completion of a handsome new firehouse and a new fire alarm headquarters building.

The firehouse known as Station One is a 2-story brick structure, designed by Clifford S. J. White. It contains quarters for Engine 1, a 750-gallon American LaFrance motor pumper, and for Ladder 3, a 75-foot American-LaFrance aerial ladder truck equipped with ladder pipe.

Chief C. R. Randlett

The accommodations include six rooms with three beds each and three single bedrooms for the officers. There is a large recreation room with library and study hall adjoining. Lockers and lavatories are provided, also kitchenette, clothes dryers, etc. This new house replaces an old station that was built in 1869, and is situated at Centre Avenue and Washington Street, Newton.

The new fire alarm headquarters which contains the latest types of instruments made by the Gamewell Company, of Newton Upper Falls, Mass., was designed by Albert S. Kendall, of the Kendall Taylor Company, of Newton. It is 2 stories high, of brick, steel, and terra cotta.

Besides the large and airy operating room the building contains a general office, superintendent's office, two bed rooms, lavatory, workshop, generator room, and battery room with racks for 1,500 cells.

The alarm system in the new headquarters will have twenty box circuits to start with and there will be provision for the later addition of twenty more circuits. There is a mutual aid panel containing signal indicators from Boston, Waltham, Watertown, Wellesley, Needham, and Brookline.

The operating equipment is a Pierce new style, 4-dial, 2-speed disc transmitter, four Nonpareil, 5-circuit registers, three time stamping machines, one PEX telephone switchboard, and a remodeled manual transmitter. Current is obtained from the Boston Edison Electric Illuminating Co., 110 volts for power with an emergency system of lighting by storage batteries. There are also two generators and a Matthews 4-cylinder gasoline engine for emergency use. The building contains a vacuum cleaning system and is heated from an adjoining firehouse.

Station No. 1 of Newton, Mass.

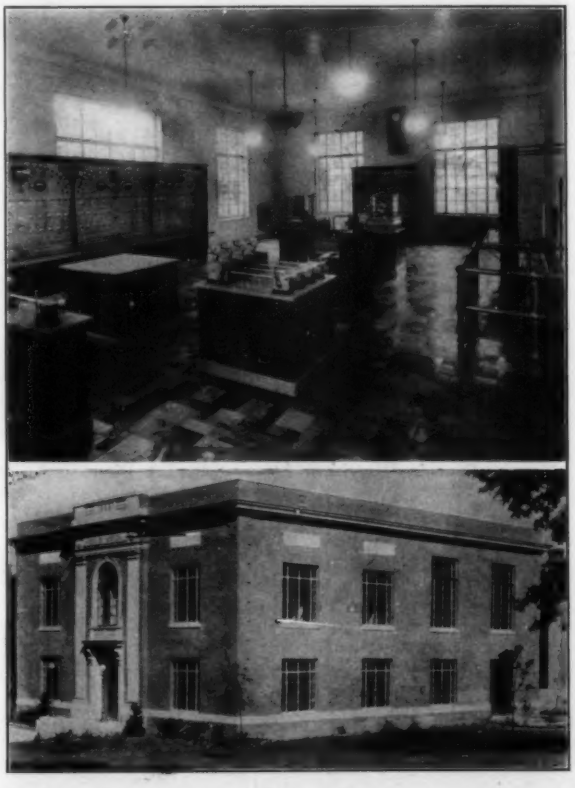
The location is an ideal one, being isolated in a park at Centre and Willow Streets in Newton Centre. The construction work was done by the C. H. Cunningham Co., of Lynn, Mass., and the installation of the alarm equipment was in charge of Leonard Dawson, of the Gamewell Company, and of Chief Randlett who holds the position of fire alarm superintendent as well as that of chief.

The building and equipment will be placed in service in 1930. The total cost is $230,000. Gray Vermont marble and art metal are used on the signal cabinets and the floor is of Stedman tile. Walls are of Kraftex imitation Travertine and windows are all of wired glass in metal frames.

The alarm system will be a manual one with two operators on each shift on a two-platoon system. Eight tower bells will be sounded only on second alarms.

The Gamewell equipment in detail is as follows: four 5-circuit box line relay boards in art metal cabinet; one 5-circuit primary alarm board, one 5-circuit secondary alarm board; four 10-circuit central office storage battery switchboards; one 40-circuit protector board with center panel arranged for 60-circuits; one central office telephone set; one operator's pedestal having mounted thereon one one-dial, 4-number, manual transmitter; one remodeled manual transmitter, two sets transmitter switches, two 5-circuit multiple keys, two sets of spring jack switches, two glass cases to cover keys and switches; two 2-circuit Nonpareil registers; two time and date stamps; two Nonpareil take up reels; black finished metal strips; one box list frame of 60-circuit capacity; a low current indicating device for local circuits; one box line recording set consisting of four 5-circuit Nonpareil registers; four black finished metal strips; four Nonpareil take-up reels, one art metal pedestal; one art metal pedestal with plain marble top with plate glass cover; one primary and secondary alarm line recording set consisting of two 5-circuit Nonpareil registers; two Nonpareil take-up reels; one art metal pedestal; two black finished metal strips; one mutual aid recording set consisting of one 6-circuit Nonpareil register with take-up reel; one mutual aid panel; one master clock in art metal case; one time and date stamp, one push button; one mahogany shelf with brackets; one chief's recording set consisting of Excelsior register, take-up reel, and upright call bell; one battery cross connecting board; two line terminal boards; six 120-inch four metal battery racks; one motor generator control panel; and two motor generator sets.

The city of Newton covers eighteen square miles and has a population of 66,000. The fire department apparatus now consists of seven pumping engines, three hose and chemical wagons, three ladder trucks, lighting plant, and service cars, with four chemical and hose cars in reserve. The motor pumpers are American LaFrance and Maxims. During 1928 the department answered 1078 calls including 230 bell alarms, 785 telephone calls, and 63 still alarms.



Exterior and Interior of New Fire Alarm Headquarters Completed in Newton, Mass.

T. Howell Johnson Recovering

T. Howell Johnson, treasurer of the New Jersey State Fire Chiefs' Association, and an officer of the New Jersey State Firemen's Association, has been confined to a hospital for four weeks. He underwent a serious operation, and according to latest reports before going to press, he is recovering rapidly.

Young Fire Commissioner

Friends of George C. Gordon, claim that he is the youngest fire commissioner in New York. He has been elected to that office in Brighton, N. Y., at the age of twenty-six by an overwhelming majority.

The fire district includes the towns of Pittsford and Brighton. The department owns one 750-gallon Ahrens-Fox pumper and two 500-gallon deluge pumpers. Chief Janes of Rochester has helped to develop the volunteer department to its high plane.

George C. Gordon

Nashville to Open School

Two buildings on the old "Peabody Campus" in Nashville, Tenn., have been acquired by the fire department and will be used as a training school for firemen.

A regular course of instruction has been planned. The school will be conducted under the supervision of Chief Frank B. Moore and Assistant Chief Jesse Scruggs. The latter will serve as an instructor.

The buildings have been loaned to the department by the management of Vanderbilt University.

Brennan Named San Francisco Chief

Announcement has been made of the appointment of Charles J. Brennan as head of the San Francisco Fire Department to fill the vacancy caused by the death of the late Chief Thomas R. Murphy. The selection was made at a special meeting of the Board of Fire Commissioners.

Fremont, Ohio, to Have Fire House—An abandoned school house in Fremont, Ohio, will be reconstructed to serve as a fire station and community center.

Ringoes, N. J., to Buy Apparatus—A chemical car equipped with two chemical tanks, one water tank and a booster pump is to be purchased by Ringoes, N. J.

Special Tax Wanted in Norristown, Pa.—A special two-mill tax is desired in Norristown, Pa., to raise funds for the purchase of fire apparatus.

Dayton, O., Firemen to Give Concerts—The firemen's band of Dayton, Ohio, has given a series of band concerts as part of the ceremonies staged for Fire Prevention Week.

Hoosick Falls, N. Y., to Reorganize—Plans are being discussed for the reorganization of the Hoosick Falls, N. Y., fire department. It is planned to appoint five men from each company as call men to work under the direction of a chosen captain. This would ensure an adequate number of firemen at each fire.

SPRINKLER SYSTEM PUTS OUT FIRES IN AIRPLANE HANGARS

Hangar at Municipal Airport of Newark, N. J., Equipped With This Device—Engineers and City Officials Watch All-Day Tests

WHILE airplanes were landing and taking off unconcernedly at the municipal airport of Newark, N. J., a large crowd of engineers, fire protection and insurance men, fire chiefs and city officials watched attempts to set fire to the contents of a new hangar which has been leased to the Colonial Air Lines.

The hangar was equipped with a sprinkler system by the "Automatic" Sprinkler Corporation of America. It is provided with six separate rate of rise deluge type sprinkler systems, or one for each bay. At either side of the hangar are large rooms separated from the main room, and these are protected by a wet pipe sprinkler system.

In the wet pipe system, the pipes are filled with water which flows down over a predetermined area when fusible metal melts in the sprinkler head. In the deluge type system, such as will protect the hangar, there are open type sprinkler orifices. There is no water in the lines that feed the openings. Instead, mounted overhead at frequent intervals, are electric actuators which operate by a rate of rise in temperature and open a valve that controls the flow of water.

Arrangement for Creeping Fire and Puff Explosion

Pans of gasoline were placed on the floor and then set on fire at stated intervals. Gasoline was fed to a whirling fan and this was set on fire by the approaching flames.

The tests were in charge of Mahlan W. Parsons, Jr., engineer in charge of the Bureau of Docks, Newark, and Garrett B. James, research engineer of the "Automatic" Sprinkler Corporation of America.

In the first test, the object was to show the sensitiveness of the actuators. Twenty pounds of excelsior was lighted and the sudden rise of temperature, operated the warning gong.

For the purpose of the second test, fusible type heads were placed on the overhead pipes and the system converted to the regular wet pipe type. The heads were of the type that fused at 165 degrees temperature. Twenty pounds of excelsior were again burned, but nothing resulted. The tests were repeated, each time with a greater quantity of excelsior. With eighty pounds of this material burning, one sprinkler head opened one minute and fifteen seconds after the fire was started, and a second head opened two minutes and fifteen seconds after the fire was started. The heads that functioned were not directly over the fire.

For the next test pans of gasoline were placed on the floor—in the first group, two pans, in the second group, four pans and in the third group six pans. The groups were spaced a small distance apart. Near the last group was placed a fan that was whirled horizontally by an electric motor. A five-gallon can of gasoline was connected with a pipe and controlled by a valve so that gasoline could pour upon the revolving blade. The object was to recreate a creeping fire and a puff explosion. One quart of gasoline was placed in each pan. There was twenty square feet of pan area.

The first pan was lighted and then the other two groups at twenty seconds intervals. The valve which controlled the supply for the fan was opened and the flames thus increased in intensity. One minute and twenty seconds after the test was started a head opened over the revolving disc, the second head went at one minute and thirty seconds and the third at one minute and fifty-three seconds. A total of six heads were fused.

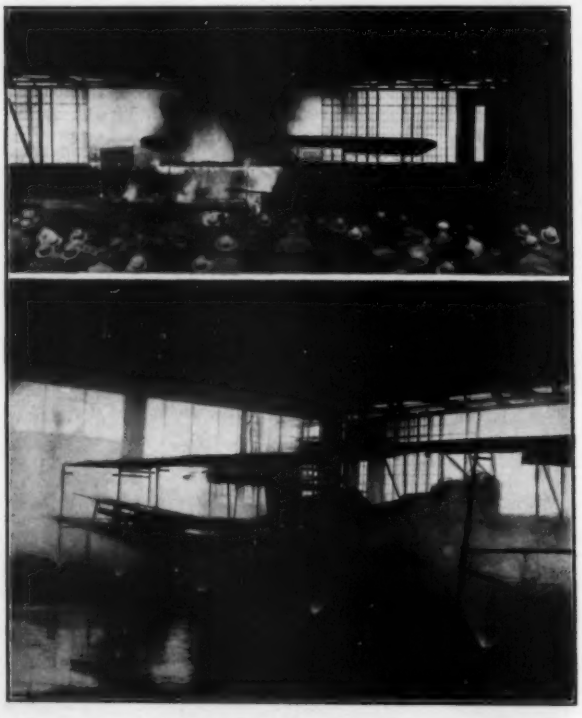
A luncheon recess was declared and during this time the heads were changed and the piping converted to a deluge system.

After lunch the previous test was repeated but instead of a wet pipe system, a deluge system was used. The first bay directly over the fire went twenty-three seconds after the first pan was ignited; another bay opened fifty seconds after the match was applied. The third bay in the test was protected by the water curtain formed by the flow from the other bays, and it did not operate.

In the hangar was an old plane fuselage. Wings and other plane material were placed about the body in about normal airplane conditions. The fan and the pans were so placed that the fire would creep up to the plane, and its intensity would be magnified by the whirling flames from the fan. But the flames never reached the plane for twenty-five seconds after the pans were ignited, the first bay let go.

The discharge of water from one bay was estimated at one thousand gallons a minute and for the three bays about a three thousand-gallon flow resulted.

A number of the spectators requested that a special test, not called for in the program arranged, be put on to show the result of actually setting the gasoline soaked plane on fire. This was done, and shortly after the torch was applied, there was a deluge of water. The hangar doors were opened at both ends to create an air current.



Upper—Crowds Watching Attempt to Set Plane on Fire. Lower—Flames Extinguished by Upper and Lower System of Open Heads

In addition to the overhead pipe openings, a number of the open type sprinkler heads were set in the floor and protected by hinged covers. When the deluge system operated, water was also fed to the heads on the floor, and the force of the water pushed up the hinged covers. In this way there was a flow from the overhead piping and small fountains formed by the sprinkler heads placed flush with the floor.

Jewish Chaplain for N. Y. F. D.—Provisions have been made in 1930 for the appointment of a Jewish chaplain for the New York Fire Department.

Dinner Tendered George W. Booth

Members of the Advisory Engineering Council tendered a testimonial dinner at the Drug and Chemical Club to George W. Booth, chief engineer of the Committee on Fire Prevention and Engineering Standards of the National Board of Fire Underwriters. The council is composed of managers and other representatives of the underwriting boards and bureaus throughout the country, and a large number of them met in New York last week for the fall meeting.

George W. Booth

A. R. Small, vice-president of the Underwriters' Laboratories, acted as toastmaster. The principal speakers were B. M. Culver, vice-president of the Continental Insurance Co. and chairman of the committee on fire prevention and engineering standards; Chief John Kenlon of the New York Fire Department, and Earnest Palmer, general manager of the Chicago Board of Fire Underwriters.

After graduating in 1891, in the civil engineering course at Worcester Polytechnic Institute, Mr. Booth served as an instructor there for about two years. For eleven years prior to 1904 he was with the Metropolitan Water Board of Massachusetts, having to do with the design, location and construction of reservoirs and conduits, serving in various capacities up to division engineer.

Since then, except during parts of 1908 and 1909, when he was with the Department of Water Supply of New York City, he has been with the National Board of Fire Underwriters. Until 1910 he was hydraulic engineer of the committee on fire prevention and since then has been chief engineer. This committee, through its reports on existing conditions, has been instrumental in influencing many improvements in water supplies, fire departments, fire alarm systems and structural conditions throughout the country. Mr. Booth's most capable and efficient supervision and direction of this work is universally recognized, both by insurance people and by the mayors, water department superintendents, fire chiefs and building inspectors.

Dockhead Firehouse in London, England

The London County Council has lately placed in service the new Dockhead firehouse of the London Fire Brigade. The site is a part of the Bermondsey dock area known as Hickman's Folly and provides room for a three-door house with a large yard and drill tower in the rear.

Exterior View of the New Dockhead Fire Station Erected in London, England

The location of the building is at the junction of several streets which allows rapid exit of apparatus at an open space relatively free from traffic. The apparatus floor, or "appliance room" as it is called in England, is approxi-

The Apparatus Floor or "Appliance Room"

mately forty-two feet by forty-seven feet with three sets of double doors.

On the southern side of the building are the watchroom, station officer's office, wash house, and staircase leading to the shift men's quarters on the first floor and to the station officer's residential flat on the second floor, the latter having also a private entrance from the front.

On the western side of the building are the recreation

Drill Tower Constructed of Steel Members

room with various out buildings, drying room, workshop, and divisional store.

The hose drying room is equipped with a drying apparatus consisting of an electrically driven fan, air heater, and system of trunking capable of drying twenty-four hundred foot lengths of hose in forty-eight hours.

The drill tower is of steel frame construction with wooden platforms. The mess hall is on the first floor of the station. The lockers, lavatories, bathrooms, and sub-officer's office are also on the first floor. The station officer's residence on the floor above consists of living room, sitting room, two bedrooms, and bathroom.

Construction is of brick with steel casement windows. The apparatus floor is covered with grooved ironstone tiles. The firemen's rooms are plastered and have granolithic flooring. The building was designed by G. Topham Forrest, architect to the London County Council.

HARRY BELKNAP.

FIRE DEPARTMENTS REQUIRE OFFICERS WITH OPEN MINDS

Men in Charge Should Be Willing to Try Out New Ideas and Methods and to Judge Them Fairly — Civil Service of Value

By PETER E. WALSH,
Ex-Chief of Fire Department, Boston, Mass.

WITH the advent of fire prevention several years ago a great change began to take place in fire fighting methods. In the beginning fire prevention was considered as a thing apart from fire fighting—fire fighting was supposed to be all right for fire-fighters but fire prevention was an entirely different proposition—it was too technical for firemen to understand. Such expressions as these were heard on every side. But as the years went on and more thought and attention was paid to fire fighting we soon found that fire fighting and fire prevention were very much akin. The learned experts who believed that fire prevention was a highly technical subject began to realize the fallacy of their theory. They soon found out that so-called fireproof buildings automatic sprinklers, frequent inspections, etc., did not of themselves constitute fire prevention in its broadest sense but merely covered the subject in its narrowest interpretation. Today they realize that fire prevention and fire protection go hand in hand, and that it is just as important to provide a fire department with the proper means of extinguishing a large fire, as it is to find ways to prevent a small fire. What I have in mind are the parts which comprise the up-to-date fire department including its personnel, its apparatus, equipment, water supply, fire alarm system and the auxiliaries which lend their invaluable aid in times of emergency, such as the police department, protective department, gas and electric companies. All these agencies, properly coordinated, are just as effective in the prevention of fire as are rules, laws and ordinances setting forth what people shall do and shall not do. In order to have proper coordination these forces must be under the command of an efficient, capable officer, assisted by live up-to-date officers of lower grades.

Ex-Chief Peter E. Walsh

There is Resemblance in Fires

Frequently one hears from fire officials high up in the profession, and many not so high up, that the only way to acquire proficiency in the extinguishment of fires is by actual practice alone. Time and time again I have heard the expression that no two fires are alike, and I want to say this, that my experience has taught me that this statement is fundamentally wrong. The man who does not see any resemblance between fires is the man who is not even learning anything by experience. Each fire may have its different features such as kind, height, width, depth and contents of the building involved, but the real student of fire engineering will handle each problem as if they were all alike. Training in the handling of tools and appliances is absolutely necessary. True, experience is a great teacher, but the man who augments his training and experience with a little close application to the theoretical side of his profession is the man who will rise above the rank and file every time. Both experience and knowledge are vital in every walk of life. The medical schools, the dental schools, engineering institutes, and so forth, send men out to practice with plenty of theory and a sufficient amount of experience so that they will be proper representatives of the schools they attended. Otherwise all that would be necessary for the individual would be to acquire a license in one way or another and then put out the shingle. Therefore, the successful man in the fire business today is the man who supplements his training with considerable study; a man who is ever on the alert to provide his community with the best, the man who is not always condemning progress, but who is willing to give consideration to a new idea and a fair trial to a new invention.

Plenty of Training Necessary

First of all then we have the training. Even in a department where the men get that training by plenty of actual fire duty, constant drilling is essential to keep them "on their toes." And this drilling is more essential in a department where the demands are not very great. For years I have been witnessing and participating in drills in my own city and since my retirement I have had occasion to observe drills in other cities and towns, and what a great pleasure it is to visit a small town and see the men perform the drill evolutions with the agility and ability of the firemen of some of our larger cities. Such a demonstration typifies a leader who knows his business, and a spirit of loyalty, efficiency and skill among the men. On the other hand, I have seen firemen drilling, or rather trying to drill with ladders, hose, life nets, and so forth in a manner which showed they had never been taught, or if they had been taught, it was so long ago that all their lessons had been forgotten. When a body of men are willing to give their time in assisting the community in protecting itself against the ravages of fire such men should be given every encouragement in the form of equipment, appliances and training.

Men Are Alike the World Over

What can we say about the equipment? Of course motor apparatus is the only major equipment that can be purchased. In addition there are many modern appliances which have been introduced in the fire department, particularly since the war. Often have I visited fire stations throughout the state, and with great pride they have shown me several new appliances which have just been purchased. After meeting men in the ranks filled with this enthusiasm it is most depressing to come in contact with an officer who frowns on anything modern. Generally speaking, men are much alike the world over in regard to taking punishment at fires, and while we have wonderful "smoke eaters" in our large city fire departments you are just as likely to find as good men in a small town on the Cape or in the Berkshires. But even so, when a man is a good "smoke eater" and willing to take the most severe punishment, is that any reason why an officer, when this age of invention has provided humane equipment, should subject firemen to unnecessary punishment? The life of a fireman is surrounded with sufficient hazards without forcing him to undergo unnecessary punishment. Out of the war came improved gas masks which have become a boon to firemen throughout the country, and it is most regrettable that some officers scorn them with the expression that real firemen do not need them. I know real firemen will stand as much punishment as their human endurance will permit, but I believe up-to-date officials will always have the well being of their men at heart and see that they are provided with such equipment as is practical to lighten the burden.

New Ideas Should Be Welcomed

I have mentioned gas masks as an incident in connection with my thought as to progressiveness in fire departments. I recall very clearly several years ago when motor pumping engines were being introduced, there was considerable speculation as to their ability to stand up with a steam fire engine. One opponent of the gasoline pumping engine, who was reputed to be the greatest steam fire engineer in the country, was so vociferous in his protests, that a test was arranged to have a steam fire engine and a gasoline pumping engine, work out under similar conditions. The demonstration was under way but a short time when the gasoline pumping engine showed that it was superior in every way to the steam engine. And even after the demonstration the great steam fire engineer had his doubts—like some present day officials he did not believe that there was anything new under the sun.

Listed among other agencies which are essential to the proper operation of a fire department, is the fire alarm signal system. Every community must have a proper system for the prompt notification of the fire department in case of fire. A fire alarm system is a most important link in the chain which goes to make up a modern fire department.

(*Continued on page* 1102)

FIRE DEPARTMENT ACTIVITIES

Canon City, Col., May Buy Pumper—Canon City, Col., is considering the purchase of a pumper.

Work to Start on W. Knoxville House—Work is to start on a fire station for West Knoxville, Tenn.

Peekskill, N. Y., Awaits Pumper—Peekskill, N. Y., is awaiting the delivery of a Seagrave pumper.

McMinneville, Ore., May Buy Apparatus—McMinneville, Ore., is considering the purchase of new fire apparatus.

Palmer, Tex., to Build Fire House—Palmer, Tex., is to erect a new fire station.

St. Helens, Ore., Has New Station—A new fire station has been completed in St. Helens, Ore.

Groveton, Tex., to Buy Apparatus—Groveton, Tex., has voted to buy a 500-gallon pumper.

Warwick, N. Y., Orders Pumper—A 750-gallon Maxim pumper has been ordered by Warwick, N. Y.

San Antonio Has Two New Houses—Two new fire stations have been formally accepted by San Antonio, Tex. The new houses are No. 6 and No. 8.

Neenah, Wis., Enlarges Department—Four men have been added to the fire department of Neenah, Wis.

Aerial Ladder Delivered to Auburn, N. Y.—A Mack aerial ladder truck has been delivered to Auburn, N. Y. It is a four-wheel, tractor drawn, apparatus.

Ogden, Utah, Approves Firemen's Raise—Members of the fire department, Ogden, Utah, were granted a ten-dollar a month pay increase.

Milford, Conn., to Buy Apparatus—The Board of Fire Commissioners of Milford, Conn., has appropriated $13,000 for the purchase of a 750-gallon pumper.

Apparatus Delivered to Goose Creek, Tex.—A 600-gallon Seagrave triple combination pumper has been delivered to Goose Creek, Tex.

More Apparatus Urged for Richmond, Ky.—The Kentucky Actuarial Bureau has recommended that Richmond, Ky., buy a 750-gallon pumper.

Waukesha, Wis., Firemen Get Increase—Firemen of Waukesha, Wis., received a five-dollar a month increase in pay while police were awarded a ten-dollar increase.

Adrian, Mich., Defeats Bonds Issue—The $50,000 fire house bond issue was defeated at the November election in Adrian, Mich.

Scranton Asks for Fire Company—Merchants of East Scranton, Pa., have protested against insufficient fire protection, and a movement is now under way to place a fire company in that section.

Wyoming May Have Fire School—Plans are being made for a two-day fire school to be held for Wyoming firemen attending the annual gathering of the Wyoming States Firemen's Association.

Commissioner Estabrook in Hospital—Willard W. Estabrook, fire commissioner of Brookline, Mass., has been confined to bed in the Deaconess Hospital at Boston for some time suffering from a bad foot. His many friends wish him a speedy recovery.

Volunteers Want Pay for Apparatus—When Hays borough was annexed to Pittsburgh the fire department went with it. But the apparatus belonged to the volunteers and they are now demanding that they be paid for the apparatus that the city has thus acquired.

Unions Protest Side Trades of Firemen—Carpenters and painters in Superior, Wis., have protested that firemen are paid for fighting fires and not to serve as tradesmen. The protests came because the men did work at the various fire stations.

Pay Increases Urged for Yonkers, N. Y.—In the 1930 budget of Yonkers, N. Y., will be included provisions for a firemen's pay increase to the maximum level of $3,000 as provided by the New York Fire Department. At present the men receive $2,500 a year.

Muskegon, Mich., to Have New Station—A new station costing $126,000 and a new alarm system costing an additional $40,000, are to be provided for Muskegon, Mich. The central fire station will have five doors for apparatus both in front and at the rear of the house.

Firehouses Planned for Staten Island—Plans have been approved for two fire stations to be erected on Staten Island part of New York City. One is to be located in the Port Richmond section and the other at Rosebank. The estimated cost of each building is $70,000.

Pittsburgh, Cal., Demands Paid Firemen—The Chamber of Commerce, Pittsburgh, Cal., is working for a paid fire department. The movement was started by a talk given by Captain Higgs of the Berkeley Fire Department at a Lions Club luncheon.

Harry Belknap Elected to Cycle Club—Harry Belknap, of Boston, well known fire buff, was elected to honorary membership in the New York Firemen's Cycle Club. His name was proposed by Dr. Harry Archer. Mr. Belknap, following his election, gave a short talk on the Boston Fire Department.

New Call System for Cleveland—Early next month, a new system of sending out fire companies will be placed in operation in Cleveland, Ohio. Battalion chiefs and other officers are being instructed in the features of the new plan which permits communication between the scene of the fire and the head office. The old plan has been in use since 1891.

Alhambra, Cal., Makes Station Plans—Plans have been drawn for a new fire station to be erected in Alhambra, Cal., at a cost of $15,000. The building will be of Spanish architecture to conform with an adjoining county health center, and it is believed that the station will be finished early next year.

Changes Made in N. Y. Fireboat Fleet — The "New Yorker," is to be moved from its position near the Fulton Market, New York City, to Fulton Street, Brooklyn; a new house on a new dock has been provided. Bids have been invited for the construction of a new dock house for the fireboat "McClellan" at East 90th Street.

Valley Stream, L. I., Has New House—A new fire headquarters building has been formally opened in Valley Stream, L. I., N. Y. On the first floor of the building is located the apparatus room, a company meeting room, kitchen with complete equipment, the chief's office, fire alarm room, showers, men's room, rescue squad room, and a large store room. On the second floor is arranged the meeting room to house four hundred persons, a room for the fire commissioners, coat room and a women's room.

New York to Make Gas Station Survey

An order was issued to the inspection forces of the New York Fire Department to make a survey and report of all gasoline and oil selling stations and storage garages in the city with a view to ascertaining violatons of the law wth respect to portable gasoline carriages dispensing gasoline to motor vehicles from positions on the sidewalks.

Peter C. Spence, chief of the Bureau of Fire Prevention and a staff of Combustible Inspectors of the Fire Department have for some time been attempting to correct complaints made by the rapid transit companies operating the subways, as well as by the Transit Commission, of gasoline being spilled into the subway structure through sidewalk ventilator gratings contiguous to gasoline selling stations and garages.

According to a recent opinion by the Corporation Counsel, it is unlawful for garages and gasoline stations to dispense gasoline from portable tanks on the sidewalk level. Fire officials construe this to mean that such portable gasoline tanks must therefore be rolled across the curb-line to the highway so that if gasoline should be spilled, it will not find its way to any place inside the curb-line.

Fire Commissioner John J. Dorman has written a letter to Police Commissioner Grover A. Whalen, requesting the co-operation of the Police Department in the enforcement of this ordinance. Chief Spence said that through the co-operation of the policemen on patrol and the fire company district inspectors, it is hoped to put an end to what has been a dangerously growing practice and out of which some day is apt to come very disastrous results and possible loss of life, unless checked now and supervised by the police and fire departments.

WM. JEROME DALY.

PROPOSED IMPROVEMENTS

Yorba Linda, Orange Co., Calif.—Chamber of Commerce considering question of forming fire district and purchase fire equipment.

Pomona, Los Angeles Co., Calif.—Councilman R. M. Hoover recommended increasing the personnel of the fire department as well as the equipment.

Seneca Falls, Seneca Co., N. Y.—Plans are being considered for establishing a fire district for rural districts of Seneca Falls, according to reports.

Wilmington, Clinton Co., Ohio—An ordinance was passed on first reading for issuing bonds to amount of $15,000 for purchase of new piece of fire apparatus.

Newell, Hancock Co., W. Va.—Funds are being raised for equipping volunteer fire department.

White Sulphur Springs, Greenbrier Co., W. Va.—Committee appointed with Mayor Bryant as chairman to investigate the purchase of a new piece of apparatus for fire department.

Providence, R. I.—Reports state taxpayers voted $60,580, at recent meeting for construction of new central fire station, the purchase of new apparatus, furnishings, etc., and installation of new fire alarm signal.

Middletown, Butler Co., Ohio—Bids are being called for construction of proposed new fire station. Address City Clerk.

St. Marys, Auglaize Co., Ohio—City Council interested in proposed purchase of fire apparatus.

Holly Springs, Marshall Co., Miss.—Additional fire equipment is to be purchased by fire department, according to reports.

Pay Raise of Pittsburgh Firemen Voted

(*Continued from page* 1086)

The following table gives the present rate of pay of the uniformed fire fighting force and the rate approved by the referendum.

Title of Position	Present Rate of Pay	Referendum Rate
Chief,	$5,000	$6,500
Deputy Chief,	3,500	4,500
Battalion Chiefs,	3,000	3,600
Captains,	2,460	2,940
Pumpmen,	2,220	2,700
Drivers,	2,124	2,604
Training school instructors,	2,700	3,180
Chief's Aides,	2,040	2,520
Firemen, 1st year,	1,800	1,800
Firemen, 2nd year,	1,920	1,920
Firemen, 3rd year,	2,040	2,040
Firemen, 4th year,	....	2,160
Firemen, 5th year,	....	2,280
Firemen, 6th year,	....	2,400
Firemen, 7th year,	....	2,520

As noted in the table the present classification of Firemen (hosemen and Laddermen) consists of three grades, 1st., 2nd. and 3rd. year service while in the referendum bill, the classification will consist of seven grades.

Since there are very few firemen on the Department at present having less than three or four years service, the large majority of the men in the service at the present time will benefit in receiving an increase in pay, as provided for by the referendum.

Fire Officers With Open Minds Needed

(*Continued from page* 1100)

At fires the police department can be a valuable adjunct to the fire department, not only in keeping the scene of the fire free and clear for the operations of the fire department, but in protecting the property of citizens which is exposed to dishonest individuals at the time of every disaster.

With all these cooperating agencies we come to the practical side of fire prevention, namely, a proper functioning fire prevention bureau. Excellent results have been obtained, and will continue so long as particular attention is paid to this phase of the work. In 1919 in Boston we started with fifteen inspectors, and during the present administration the force was increased. Today it is headed by a deputy chief who directs the work of one captain, thirty inspectors, and seven clerks. In 1927, while I was in charge of this division there were 211,000 inspections made by the inspectors, with 7,000 complaints, all of which were remedied by peaceful persuasion with the exception of twenty-six. It was necessary to summon the latter number into court in order to enforce the provisions of the law, and in each case a conviction was secured.

I have made mention of some things which I believe are necessary to keep a fire department alive and up to the standard. They are only generalities, but they show the pulse of the department head. When there is a change, it is either for the good or otherwise.

Unfortunately but a few of those who enter the fire department attempt to advance themselves by means of Civil Service promotion, and many of these are unsuccessful. Because the Civil Service method of promotion is the only method followed in large communities it comes in for all the criticism. To those who have been successful it is an admirable system. To those who have failed it is all wrong. Let us look at the fireman who is appointed or promoted because he is number one on the Civil Service list. He may be criticized because he cannot measure up to a few of the more rough and ready firemen in the department, but if he is willing to take an average amount of punishment, and couples this with ability of leadership, what more need be expected. Some men laud the fireman who is overcome at every fire he attends, and tell the world what a wonderful fire fighter he is. That kind of conduct is not always good fire fighting. There are exceptions, but the man who sticks it out to the bitter end, and has the will to stay, is just as good as the man who passes out at a fire in its early stages.

Civil Service of Value

It has been my experience that the great majority of officers made in the Boston department through Civil Service were very good men in every phase of the game. There are exceptions, and there always will be. The advent of competitive tests for promotion in the larger cities of the country has been the means of creating more actual fire engineering knowledge among the privates striving for the grade of lieutenant, than was possessed by the department heads of a couple of decades ago. So we see some of the advantages of Civil Service in spite of some of the criticisms. Constructive criticism is a good thing, and until a man has some constructive ideas for a better method of selecting men for promotion, or some improvement over the present system he should adapt himself to take the present method and make the best of it. There are possibly ways of improving the present system, and while I am not in a position to speak, I can say that it has been my experience that the Civil Service Commission has always been willing to give consideration to constructive suggestions that will provide the greatest good to the greatest number. If those who are prone to do so will cease criticizing a system which they are not willing to try, and try to bring about some constructive method of improving the system we now have, some good may be accomplished. Let us do what we can with what we have and if something more practical is advanced let us try it. It is just as true in Civil Service as it is in the Fire Department.

(Abstract of paper presented at the Massachusetts State Firemen's Association convention, Worcester, Mass.

Head of Denver Fire Alarm Dead

David Reed, popularly called the father of the police and fire alarm system of Denver, Col., died at his home in that city at the age of sixty-one.

Representatives of the Police and Fire Departments attended funeral services. At the head of the gray casket stood a red carnation replica of a fire alarm box, and attached to this was a double armed telegraph pole made of white carnations.

A number of city officials including Chief John F. Healy, and R. W. Hershey, Safety Commissioner, were present.

Companies Consolidated in Owosso, Mich.—Two fire companies in West Owosso, Mich., have been conbined because of possible financial savings.

CONVENTION DATES

May 12, week of, 1930—NATIONAL FIRE PROTECTION ASSOCIATION. 34th Annual Meeting, Atlantic City, N. J. 1931 Convention probably to be held in Toronto, Can. Managing Director, Franklin H. Wentworth, 60 Batterymarch St., Boston, Mass.

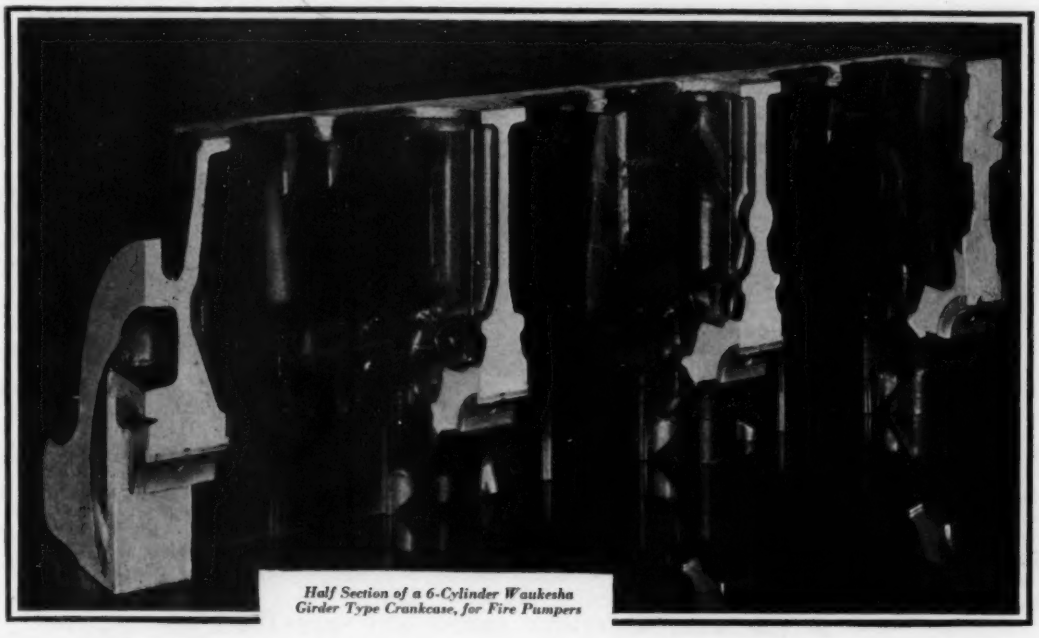
May 14, 1930—DEL-MAR-VA. VOLUNTEER FIREMEN'S ASSOCIATION. 1st Annual Convention, Cambridge, Md. Secretary, J. Emory Parks, Cambridge, Md.

May 26-29, 1930—KANSAS STATE ASSOCIATION OF FIRE CHIEFS, STATE FIREMEN'S ASSOCIATION and FIRE SCHOOL. Respectively, 14th, and 43rd Annual Convention and 2nd Annual Fire School, Salina, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan. Secretary Firemen's Short Course Committee, E. J. Stewart, Kansas Insp. Bureau, 701 Jackson St., Topeka, Kan.

June, 1930—EASTERN ASSOCIATION OF FIRE CHIEFS. 3rd Annual Convention, Baltimore, Md. (Exact date to be decided later.) Secretary, Ex-Chief T. Howell Johnson, Room 602, Chamber of Commerce Bldg., Newark, N. J.

July 29-31, 1930—INDIANA FIREMEN'S ASSOCIATION. 13th Annual Convention, Lafayette, Ind. Secretary, Clem Smith, Fire Headquarters, Terre Haute, Ind.

Sept. 24-25, 1930—MISSOURI STATE FIREMEN'S ASSOCIATION. Annual Convention, Trenton, Mo. Secretary-treasurer, M. J. Mulvoy, St. Louis, 3500 S. Grand Boulevard, St. Louis.

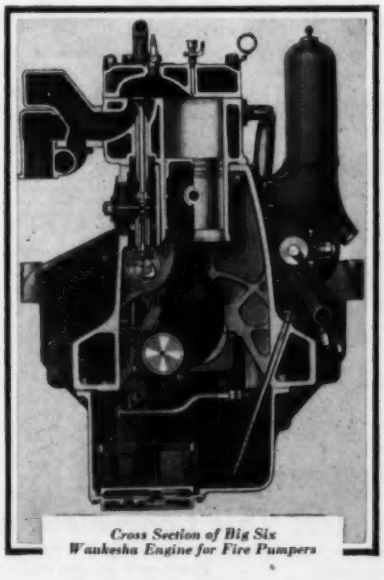


Half Section of a 6-Cylinder Waukesha Girder Type Crankcase, for Fire Pumpers

A deeper crankcase ... for ... longer life

THE RIGIDITY of Waukesha High-duty Engines does not depend entirely upon their overstrength crankshaft. The Waukesha patented "girder" type crankcase is also designed for extra rigidity—both in bending and torsion.

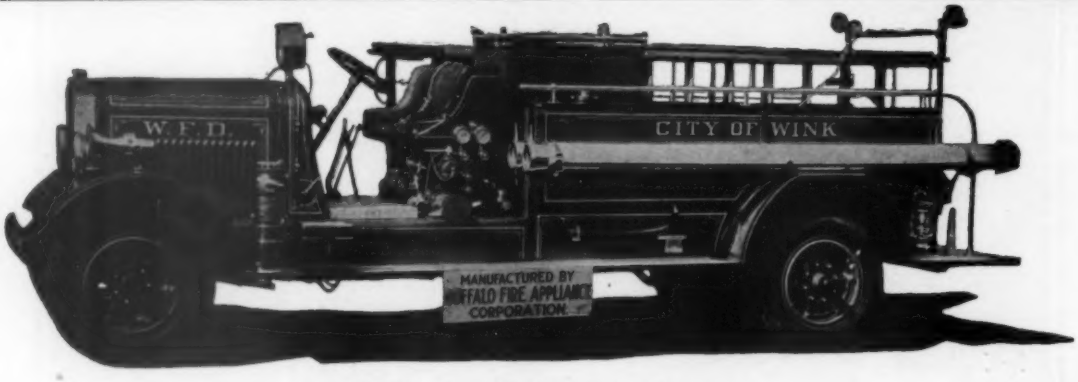
Waukesha's "truncated" cylinders are held by flanges half way up the barrel, making the crankcase six or eight inches deeper. Its ribbed cross walls are combined with wide box section bottom flanges. Behind the valve tappets, running the entire length of the engine, is an extra wall that helps tie the four cross walls together. This construction increases stiffness and rigidity tremendously. Maximum bearing life is thus assured, as well as extreme smoothness and freedom from destructive vibration. Bulletin No. 718 gives all details. Write to *Fire Equipment Division, Waukesha Motor Company, Waukesha, Wisconsin, Offices: New York, 8 West 40th Street; San Francisco, 7 Front Street.*



Cross Section of Big Six Waukesha Engine for Fire Pumpers

971

WAUKESHA ENGINES



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Buffalo Pumpers are the most highly developed in design, construction and engineering standards and are intended for municipality, community and township fire protection.

Buffalo Pumpers are also noted for their efficiency and their great abundance of reserve power. They are pumpers with stamina and speed. All the above have to be credited for bringing great pumping merits for Buffalo Pumpers.

Buffalo Pumpers are given great and careful attention when under construction at our factory by engineers, both mechanical and designing, who have been in contact with the construction of pumpers for years.

Buffalo Pumpers range from 300 gallon capacity to 1000 gallon capacity.

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Every Fire Dept. Officer Should Have

These Four Books—*Packed Full of Practical Information*

What Every Fire Fighter Should Know

A 300 page book, fully illustrated, prepared by the Editors of FIRE ENGINEERING.

Contains about everything that is required to give ambitious fire officers a thorough understanding of up-to-date fire fighting, fire protection and fire equipment. Brimful of authoritative data. The following are some of the subjects covered:

Fire departments, how organized, their equipment, and how to determine the apparatus needed. Fire hose, its care and testing. Advantages and disadvantages of different sizes of hose. Fire alarm systems and apparatus. Auxiliary fire appliances.

Fires and how they should be handled. Fire streams. Fire fighting administration. Drills and training. Fire extinguishers. Dangerous oils and chemicals and how they should be handled at fires. And there are many others.

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Questions and Answers for Battalion and Deputy Chiefs

A 210 page book, fully illustrated, by Geo. J. Kuss, former Deputy Chief, New York Fire Department, and Fred. Sheppard, Managing Editor of FIRE ENGINEERING.

A valuable book, not only for candidates for examinations for Battalion and Deputy Chief, but for every member of the department. The only book published which gives detailed methods of operating at large fires and the reasons for each move.

The following are a few of the important topics covered:

Detailed description of the proper procedure in fighting fires: 1. Size-up; 2. Calling of help; 3. Saving of life; 4. Covering exposures; 5. Extinguishing fire; 6. Overhauling. How to test motor fire apparatus. How the following types of fires should be fought: Large department stores, large hotels and rooming houses, large area residential fires, combination stores and apartments, motion picture film exchanges, tall office buildings, wholesale grocery stores and warehouses, group building fires, theatres, schools, factories, etc., and considerable other data.

Price—$2.15, postpaid.

Questions and Answers for Lieutenant and Captain

A 290 page book, fully illustrated, by Geo. J. Kuss, former Deputy Chief, New York Fire Department, and Fred. Sheppard, Managing Editor of FIRE ENGINEERING.

Contains questions asked at promotional examinations in practically every city in the country where civil service examinations are held, with answers.

Includes chapters on Report Writing, How to Answer Examination Questions, Chemistry Examination Questions, Fire Fighting Questions, Overhauling, Ventilation, Fire Prevention, Inspection, Evolutions, Drills, Use of Apparatus, Rescue Work, and in fact all the topics covered by the fire department promotional examinations.

If you are studying for a promotional examination, you need this book, and if you are not studying for examination, this book will nevertheless give you a vast amount of valuable information on up-to-date fire methods.

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A 200 page book, fully illustrated, by Fred. Sheppard, Managing Editor of FIRE ENGINEERING.

A complete course of instruction in fire department hydraulics. Designed to prepare fire department officers for hydraulic questions in examinations, such as required of all ranks.

Contains over 150 problems in fire department hydraulics asked in examinations in New York, Chicago, Milwaukee, Seattle, Newark, and a score of other large cities.

Treats fully all departments of fire department hydraulics, including pressure calculations, friction loss, engine and nozzle pressures, range of streams, capacities of engines, discharge from nozzles, hydrants, sprinklers, etc., etc.

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FALSE ALARMS

Drawing by "Art" Espey

The Modern Type Fire Chief—"Well Read" and a Man of Letters

AN ASSET

An ambitious mother had taken her daughter for an audition before a well-known vocal instructor. After he had suffered through one number in silence, the mother asked:

"Professor, do you think that my daughter will ever be able to do anything with her voice?"

He replied very gravely:

"Well madam, it might come in very useful in case of fire."

Just when you decide in which corner the piano looks best, the lease is up and it's time to move.

A REUNION

When the fireman came home at night he noticed that the welcome was unusually affectionate and that there were tears in his wife's eyes.

"What's the matter?" he asked.

"Oh, dear, I am so glad that you came home. I heard that some crazy idiot fell off the ladder at the drill school, and I felt so sure that it was you."

At all events, the correspondence school does leave its stamp.

HONESTY FIRST

The village hall had been hired for a fire department benefit. The management supplied a ticket seller and a man to take tickets in addition to the usual theatre staff. The chief stood near the window to greet all the patrons.

A man approached the window, put down a half dollar and walked away without waiting for the change. The chief noticed this.

"Does that happen very often?"

"Very often," replied the one behind the window.

"Well, what do you do in a case like that?"

"Oh, I always grab the sponge and rap on the window."

A good question to ask the bootlegger is how many gallons does he get to the quart.

SEEDS DESIRED

The new station was opened to the public, and several firemen, attired in neat uniforms, were assigned as guides for the visitors.

One kind old lady had called.

After showing her several parts of the main floor, the guide asked:

"Would you like to see our generating plant?"

The visitor brightened up and said:

"I'd love to. I'm frightfully interested in tropical plants."

It seems that women who go to Paris for clothes forget to bring them back.

TRUE TO TYPE

The commissioner requested that the chief furnish him with the chief's portrait so that a cut could be made for the annual report. A visit to the photographer was necessary.

When the chief called for the proofs, he was very much excited.

"Great guns! This is terrible! I look like a clown—a complete monkey."

The photographer remarked sarcastically:

"You should have thought of those things before you came here."

With some motorists the turnover is costlier than the upkeep.

EXPENSES SAVED

After the efficiency expert had left a wake of ruin in the city hall, he turned his attention to the fire department. But he was asked to resign when, as a cost-reducing move, he attemped to have installed unbreakable glass in the fire alarm boxes.

A girl and a car are much alike. A good paint job conceals the years but the lines tell the story.

BEST BY TEST

Station 4 was in a busy part of the city. Large crowds passed by every day. An advertising man thought that this would be an ideal place to stage his Old Gold test.

Before a large audience, one of the staff was blindfolded. He was given a cigarette to smoke and then a cup of coffee to drink; another cigarette and then a cup of coffee and so on.

Anxiously the spectators listened for the verdict.

The blindfold was removed.

"I like the first cup of coffee best."

If your girl thinks you are only a pebble on the beach, try to be a little boulder.

THE CHIEF REASON

Tim had been fired for drunkenness, and although it was generally known by the department, he never admitted the fact.

One day he was asked point blank why he left the fire force. Tim had an answer ready.

"I was down to a church lecture one day and they showed a big picture of a drop of water. And after I saw all them things that crawl around in it, I said that I'd be damned if I would mess around with such stuff any longer. I quit."

"Good night," he said, as he put his drunken friend to bed, "sleep tight."

POORLY PAID

Some minor repairs were needed at the main station and so a general handy man was consulted.

"What'll you pay?" the man asked after he had been told what was expected.

"I'll pay you what you are worth."

The laborer thought for a while.

"I'll be damned if I'll work for that."

A girl with red hair has to live up to it.

SAID ENOUGH

There had been a very disastrous fire in the city. Lives had been lost. A reporter was sent to the chief to obtain his views.

When the reporter ambled into the office, after he had performed his mission, the city editor asked:

"Well, what did the chief have to say?"

"Nothing."

"Well then," replied the editor, "keep it down to a column."

From the way some people speed past you in an automobile, you would think the district attorney was after them—and he probably is.

A MISUNDERSTANDING

In a certain community composed largely of Polish and Russian residents, the volunteer department was lined up in front of the station for the annual inspection, prior to the parade.

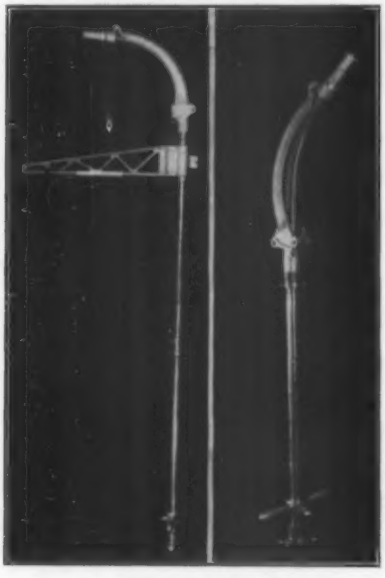
The chief officer was reading the roll. Suddenly he sneezed. Three men in line answered, "Present."

CHIEF O'HANLON DESIGNS NEW FLEXIBLE HOSE ATTACHMENT

Has Been in Use at Some New York City Fires for the Past Eighteen Months —Praised by Other Chiefs of Department

BY WILLIAM JEROME DALY

DEPUTY CHIEF JOSEPH O'HANLON of the 3rd Division, New York Fire Department has been granted on a flexible nozzle so designed that it can expand from a minimum length of eighteen inches to a maximum measurement of nine feet. It can be flexed from zero to thirty, sixty or ninety degrees, and at any of these angles it can be locked against back pressure.



Nozzle With and Without Brace

It is the result of diligent and experimental labors of three years, and although it has been in use for the past eighteen months at numerous fires in the hotel, theatrical and shopping districts of midtown Manhattan, it has up to this writing never been publicly described.

Fire fighters in New York have been unstinting in their praise of Chief O'Hanlon's accomplishment in having produced a device that has demonstrated to the satisfaction of the most discriminating students of fire engineering that it is one of the most progressive and useful additions to the practical side of fire fighting as yet produced.

The nozzle itself is but a strip of sturdy tubing supported by a rigid backbone or semi-housing in the trough of which the flexible nozzle is set at the desired angle.

One of the extra-special features of the O'Hanlon device is its adaptability to the outlet of a controlling nozzle where by removing the tip of such a nozzle, the appliance can be attached by means of an increaser leading into the flexible pipe; and then opening up the control of the water.

On one of three extension pipes which can be attached, there is an indicator or pointer to tell the operator of the line or nozzle the exact direction in which the stream is playing. The tip of the O'Hanlon nozzle is 1¾ inches. The nozzle at its minimum length of eighteen inches weighs ten pounds; at three feet it weighs twenty pounds and at nine feet thirty-two pounds.

The O'Hanlon device is especially adaptable for cock-loft, wall, and ceiling fires. The inventor has demonstrated its usefulness in stairway, sky-light, partition and shaft fires, as well as for flames under docks, in hatch-ways, port holes ventilators, stairways, coal chutes and hoistways.

Chief O'Hanlon has invented an auxiliary appliance to facilitate the use of the nozzle for fighting fire through the window of the floor above from a position at the window on the next flor below without encountering the smoke, heat and flame of the floor actually afire. This is done with the aid of a hook attachment, fashioned much after the type or style of scaling ladder window-sill hook, which, when affixed to the slender pipe immediately at the point where the nozzle starts to bend its head over the sill, it claws the sill or the sash, of the window after it is elevated from the sill below by the fireman straddling the window. The goose-neck is turned into the floor belching forth water. The pipe once rested on the sill, cannot back itself out from pressure because any one of three tentacles holds it fast at the window of the fire floor.

Another auxiliary attachment is a cross-bar and chain for supporting the slender pipe either at the dock-side or through an opening in a roof or a puncture in a floor or across shaft windows. There is a chain attachment the links of which automatically jam fast in a peculiar shaped hook on the cross-bar. This cross-bar serves as a suspension brace and if the nozzle is dropped through a roof or a floor, the weight is sustained by the chain and bar while the operator has nothing more to do than to observe his indicator on the grip-handles of the pipe which tells him the direction of the stream.

All the while the O'Hanlon flexible nozzle-pipe is operating, the control of the water is at the controlling nozzle connection between the hose line and the O'Hanlon contrivance.

Chief O'Hanlon carries two of his pet inventions in his car and frequently uses them. They have been requisitioned by neighboring chief officers desirous of testing them and demonstrating for their own satisfaction the general utility of the nozzle in tight, crooked or peculiar places, especially in stairways and cellars of old-law tenements.

The Round Table

(*Continued from page* 1088)

Albert Chamberlain, Chief, Hillside, N. J.: Our drivers are protected by insurance against accident. I believe this should be done by all municipalities. However, drivers must use good judgment and always consider traffic conditions when driving apparatus in order to avoid accidents.

Daniel F. Donovan, Chief, Kansas City, Mo.: Drivers in this department are not protected by insurance against accident unless they carry personal policies. I personally do not consider it a good plan for cities to carry such policies.

William Rumley, Chief, Washington, N. Car.: Our equipment is insured to cover any damage done to outsiders. In view of this fact, I see no reason why the driver should be insured.

I am heartily in favor of insurance and feel that it should be carried.

Jos. Waidelich, Chief, Topeka, Kans.: As it must be gross carelessness on the part of a driver of fire apparatus to be held liable, I see no reason for insuring. No insurance of this sort is carried here.

C. B. Moon, Chief, Warsaw, Ind.: In regard to insurance on drivers, I would say that this city does not carry any such insurance on the men. However, I do think this should be done by the city and that it should be held liable for all accidents except in the case of criminal negligence.

H. H. Niemeyer, Chief, Portage, Wis.: The driver and also the fire apparatus of this department are amply protected by city insurance policies. I believe this is one of the most satisfactory plans. In volunteer companies drivers are often secured who are not qualified. In such cases the protection of a recognized insurance company policy makes inspection more stringent.

Geo. J. Renner, Chief, Monroe, Mich.: This city protects all drivers with insurance and I am heartily in favor of this.

J. C. Inglee, Chief, Whitehall, N. Y.: Drivers in this department are protected by insurance in case of accident. I consider this a good plan and believe that cities should protect their drivers, insurance inasmuch as cities are not held liable.

C. D. Stockwell, Chief, Burlington, Vt.: While some of my drivers are insured, this is not carried by the city. I certainly do think that the city should provide insurance for members of the department.

S. B. Lent, Chief, Bremerton, Wash.: Yes, our drivers are insured against accident. I believe, in view of the fact that drivers are held liable, cities should provide this insurance. Firemen risk their lives everytime apparatus is taken out as it isn't always possible to avoid accidents.

H. Moffett, Secy., Rushville, Ind.: Our drivers are not protected by insurance against accident. I certainly believe drivers should be protected in this way.

C. W. Corliss, Chief, Lagrange, Ga.: Yes, our city carries liability insurance that protects them regardless of who is driving.

Wm. F. Mader, Chief, Bucyrus, Ohio: While this city does not protect drivers against accident by covering them with insurance, I personally believe this should be done since the drivers are held liable.

W. E. Holland, Chief, Raleigh, N. Car.: No, drivers of our department are not protected by insurance against accidents. However, I certainly think this is a good plan.

J. C. Taylor, Chief, Kannapolis, N. Car.: While our drivers are not protected against accident by insurance, I do believe this is something that the city should do.

MATHEWS

(Reg. U. S. Pat. Off.)

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DOMESTIC

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HIGH PRESSURE Service

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The positive waste value.

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No toggles, no small, quick-wearing parts.

All moving parts are bronze or bronze-bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

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	One	More Than One
Gold Filled	$5.00	$4.50
Silver	4.50	4.00
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A. D. T. Protection Systems, operating through 115 A. D. T. Central Offices throughout the country, give you prompt notice of the exact location of fires, thereby enabling more prompt response on your part.

The Watchman's Supervisory and Manual Fire Alarm System insures positive property protection at all time, minimizing the fire hazard.

A. D. T. Systems, approved by Underwriters', will help to increase the efficiency of your fire fighting organization. It will pay you to recommend them.

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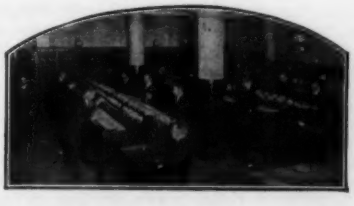

A typical A. D. T. Central Office where coded fire alarm signals are received and immediately transmitted to the fire department.

A.D.T. SYSTEM

2678

E. S. Mohn, Chief, Jersey Shore, Pa.: Our drivers are protected by insurance and I certainly am in favor of this being done.

Fred Sahle, Chief, Fredonia, N. Y.: Drivers in this department are not protected by insurance. However, I do think cities should carry such insurance as a protection to the men.

G. B. Goff, Chief, Oklahoma City, Okla.: Drivers in this department are not protected by liability insurance. I personally believe such insurance should be provided.

J. C. Pierce, Chief, Woodstock, Ill.: No insurance is provided here to protect drivers against accident. I certainly believe the city should carry such insurance.

R. W. Montgomery, Chief, Richmond, Ky.: While drivers in this department are protected by insurance against accident, I personally do not consider this a good plan.

Ray N. Mahan, Chief, Ashtabula, Ohio: Our drivers are not protected against accident by insurance. I personally wolud prefer having the truck itself insured against liability.

Frank Gilkeson, Chief, Bristol, Conn.: Yes, our drivers are covered by insurance to protect them against accident. The Council pays for this insurance.

Frank Hochreiter, Chief, Wilkes Barre, Pa.: In answer to your question I would say that while our drivers are not protected by insurance against accident, I, personally believe this is a good plan and that cities should provide such insurance.

Ralph Eddie, Chief, Webster Groves, Mo.: Our drivers are not protected with insurance. In my opinion such insurance would cause a driver to be more careless.

M. W. Bloomquist, Chief, Willmar, Minn.: Drivers of this department are protected by insurance. I believe all cities should provide such insurance.

H. R. Delfs, Chief, Lansing, Mich.: No, the drivers in our department are not protected by insurance against accident but I do believe this is a good plan and should be carried by the city.

R. B. Pinder, Chief, Key West, Fla.: While our drivers are not protected against accident by insurance I do believe this would be a good plan.

J. G. Sarran, Chief, San Antonio, Tex.: No, our drivers are not protected against accident by insurance. I personally do not think the city should provide such insurance. When an accident occurs here a report of same is made to the city attorney and if litigation follows, he handles the case.

John J. Mahoney, Chief, Haverstraw, N. Y.: Yes, our drivers are protected by insurance against accident and I think it is a very good plan.

Jos. Roberts, Chief, Tucson, Ariz.: I do believe it a good plan for cities to provide insurance to protect drivers against accident.

Answers to Previous Questions

Geo. M. Mantor, Chief, Seattle, Wash.: There is no city ordinance restricting the speed of fire apparatus. Owing to the fact that the speed limit for all vehicles within the city limits is twenty-five miles an hour, and further that nearly every motorist travels at from thirty-five to forty miles an hour, especially on arterials, we have paid no attention whatsoever to any speed limitations. If we did the motorists would run over us.

In responding to alarms within the city, our equipment travels between forty and forty-five miles an hour, except staff officers, who many times exceed this speed on open stretches.

Personally, I am not a believer in the speed limit for fire apparatus and have consistently fought against it, relying upon our rules and regulations for common sense driving under varying conditions to carry us through. Our rules sfate as follows:

"When responding to alarms company officers shall require that their apparatus follow the nearest and most practical route.

"When leaving quarters in response to alarms from stations housing more than one piece of apparatus, apparatus on right side of station shall have right of way when turning to right; when turning to left, apparatus on left side of station shall have right of way.

"Staff officers shall at all times be allowed right of way.

"Racing or reckless driving of apparatus shall not be permitted under any circumstances, and at all times when not responding to alarms company officers shall require drivers to strictly obey traffic laws and regulations and shall take every precaution to avoid accidents.

"Company officers and drivers respectively will be held strictly responsible for all accidents."

G. M. Hourven, Chief, Winnetka, Ill.: We have no rules in our department regarding speed of apparatus. This is left to the judgment of the man in charge.

I do not think the fire department should be hampered by rules of speed. A man watching the speedometer is more liable to have an accident than if he were speeding.

Walter T. Steinmetz, Chief, Alameda, Cal.: In responding to alarms no speed limit is set. However, drivers must have apparatus under control at all times. A speed limit of twenty miles an hour is allowed when returning to quarters. The department is also required to stop at traffic stop signs when returning from a fire. I believe the speed limit of apparatus going to a fire should be governed by the amount of traffic in congested districts or in the residential sections and that such speed should be left to the judgment of the captain who instructs the driver.

Wm. Clemo, Chief, Palo Alto, Cal.: There is no speed limit for fire apparatus responding to alarms. Drivers are cautioned to be careful and sirens are to be used continuously when answering an alarm, but not when returning to quarters, except for particular reasons. All traffic rules are obeyed when returning from a fire.

I believe the speed of all fire vehicles should be left to the Chief. He should not be hampered with a lot of laws to prevent, in some cases, apparatus getting to a fire without delay to extinguish the blaze.

In answer to your question regarding chimney fires, I would say that in the past twelve months we have had nineteen chimney fires. Our method of putting them out is to use a sweep or soda. Water is never used on a chimney fire. So far we have had good luck in extinguishing these fires. It is a good practice to put a canvas in front of the fire place to keep dust from flying all over the rooms.

J. D. Cole, Chief, Rhinelander, Wis.: We use soda and acid to extinguish chimney fires. In the winter we sometimes use snow. When a chimney is plugged up, the first thing that has to be done is to open it up and then employ one of the above methods. We carry a cleaning tool and find that it cuts down a good many losses by smoke or from cracked chimneys.

Rural Fire Loss One-Third of Total

According to figures of the National Board of Fire Underwriters, the total loss from fire, exclusive of forest losses, in the United States in 1928 exceeded $450,000,000. Because comprehensive statistics are not available showing what proportion of the loss occurs on farms and in rural communities, considerable effort has been made and is being made by various interested organizations to arrive at an estimate as to what share of the loss is suffered by rural districts.

At a meeting in Chicago the latter part of September the Committee on Farm Fire Protection of the National Fire Protection Association, the leadership of which has been accorded to the U. S. Department of Agriculture, endorsed the following statements:

"In the opinion of the Farm Fire Protection Committee, the loss from fires on farms in the United States is approximately $100,000,000 annually.

"It is the opinion of the committee that the loss on farms and in rural communities (2500 population and under) may exceed $150,000,000 annually.

"In addition to this extensive property loss there is a large rural loss of life estimated to be as high as 3,500 lives a year," says David J. Price, engineer in charge of the division of chemical engineering, Bureau of Chemistry and Soils, U. S. Department of Agriculture, chairman of the committee. "These figures suggest that practically one-third of the total fire loss in the United States occurs on farms and in rural communities, and emphasize the importance of making concerted organized efforts to reduce the losses."

Long Beach, Cal., Stops "Trade-In"—The city council of Long Beach, Cal., has refused to sanction the trade-in of fire apparatus, the speedometer of which showed only a travel of 12,000 miles, for new apparatus. A trade-in allowance of seventy dollars was offered.

Fire House Opened in Green Bay, Wis.—Firemen who have been living in tents for several months are now comfortably located in Station No. 1, just completed. The men were hosts to several hundred visitors at the formal opening. Many local furniture dealers have donated furnishings for the station.

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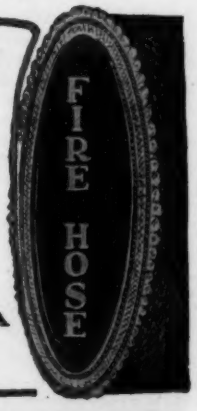

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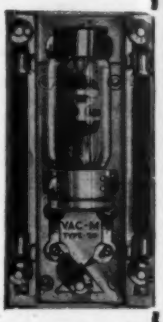

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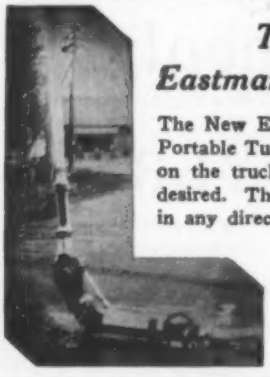

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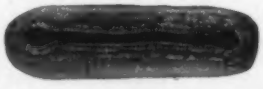

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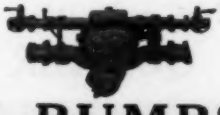

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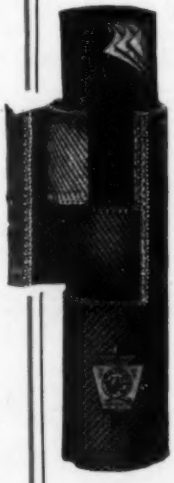

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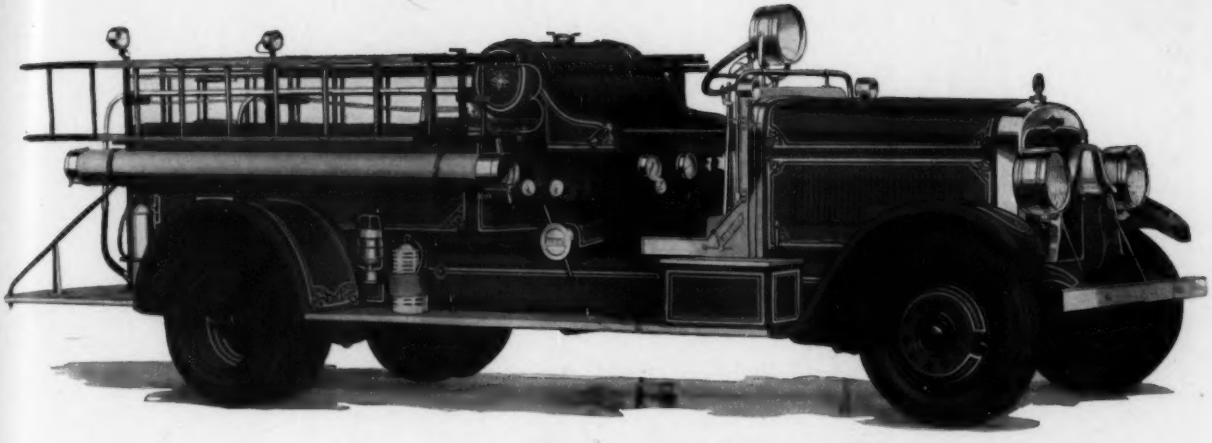

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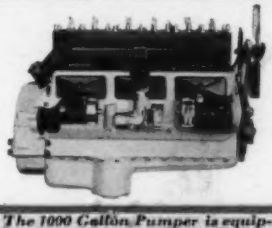

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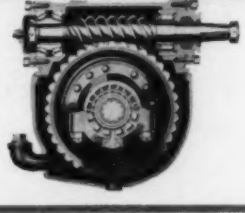

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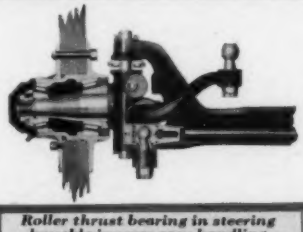

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